State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR PROPOSED RULEMAKING

Public Hearing to Consider

PROPOSED AMENDMENTS TO THE EMISSION INVENTORY CRITERIA AND GUIDELINES REPORT FOR THE AIR TOXICS "HOT SPOTS" PROGRAM

To be considered by the Air Resources Board on November 16-17, 2006, at:

California Public Utilities Commission
Auditorium
505 Van Ness Avenue
San Francisco, CA 94102

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PROPOSED AMENDMENTS TO THE EMISSION INVENTORY CRITERIA AND GUIDELINES REPORT FOR THE AIR TOXICS "HOT SPOTS" PROGRAM

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EXECUTIVE SUMMARY

The Air Toxics "Hot Spots" Information and Assessment Act ("Hot Spots" Program or Act; AB 2588; Stat. 1987, ch 1252; Health and Safety Code Sections 44300 through 44394) provided one of the fundamental building blocks of California's air toxics program. The "Hot Spots" Act set in motion steps to collect emission data on air toxics emitted in California, to identify those facilities with unacceptable localized health risks, and to ensure nearby residents were notified of significant risks. Subsequent legislation (SB 1731) in 1992 established a mechanism to reduce significant risks to health protective levels.

Major benefits have resulted from implementation of the "Hot Spots" Program over the past 17 years. The toxic pollutant information collected pursuant to the Act played a major role in the development of a statewide toxics emission inventory which provides data for public requests for toxics information, and provides essential information for the development of risk assessments and cost-effective risk reduction measures. More importantly, exposures to toxic air emissions have been reduced as facilities throughout the State implement measures to reduce toxic air pollutant emissions and reduce public health risks resulting from their operations.

The Emission Inventory Criteria and Guidelines Report and Regulation ("Guidelines Regulation", Section 93300.5, Title 17, California Code of Regulations) provides direction and criteria to facilities on how to compile and submit air toxics emission data required by the "Hot Spots" Program. The Guidelines Regulation was first adopted by the Air Resources Board (ARB or Board) in 1989 and subsequently amended several times to reflect new data, and to streamline the reporting process.

The purpose of this staff report is to describe proposed amendments to the Guidelines Regulation to reflect the identification of diesel particulate matter (diesel PM) as a toxic air contaminant (TAC) in 1998. The proposed amendments also harmonize "Hot Spots" requirements with the airborne toxic control measure (ATCM, Section 93115, Title 17, California Code or Regulations (CCR)) for stationary diesel engines, which was adopted by the Board in 2004, and the proposed amendments to the ATCM currently under development that will address in-use agricultural diesel engines. This is being done to minimize duplicative requirements, and to ensure that potential risks from all engines are evaluated and mitigated where necessary. The proposed amendments also incorporate the Office of Environmental Health Hazard Assessment (OEHHA) Health Risk Assessment Guidelines and health values, which have already gone through a public process. The proposed amendments add a new chapter on diesel engine reporting requirements and other minor revisions to bring the Guidelines Regulation up to date. In essence, the proposed amendments to the Guidelines Regulation are written to have the "Hot Spots" Program catch up with existing actions already being taken to address diesel engines and other activities already being implemented in California.

Overall, the amendments are designed to leverage the inventory reporting and risk reductions that are required under the stationary diesel engine ATCM and the

proposed ATCM amendments for in-use agricultural engines. The proposed amendments were written to minimize duplicative efforts, and to focus requirements on those facilities that may have significant residual risk after the ATCM is fully implemented.

Presented here is an overview of the "Hot Spots" Program; the proposed amendments to the Guidelines Regulation; the technical justification for these amendments; the environmental and economic impacts from the proposed modifications; and a description of the public outreach conducted during the development of the proposed amendments. For simplicity, the discussion is presented in question-and-answer format using commonly asked questions about the proposed amendments. It should be noted that this summary provides only a brief discussion on these topics. The reader is directed to subsequent chapters of the report for more detailed information.

1. What is the "Hot Spots" Program?

The "Hot Spots" Program was created by the Air Toxics "Hot Spots" Information and Assessment Act of 1987 and its subsequent amendments (AB 2588; Stats. 1987, ch. 1252; Health and Safety Code Sections 44300 through 44394). The "Hot Spots" Act was established to inform and protect the California public from exposures to toxic air pollutants. The Act established a program to inventory emissions of toxic substances emitted into the air, and to assess the public health risk to those who are exposed. The Act requires that toxic air emissions from stationary sources (facilities) be quantified and compiled into an inventory according to criteria and guidelines developed by ARB. The Act also requires that each facility be prioritized to determine whether a health risk assessment must be conducted, that the risk assessments be conducted according to methods developed by OEHHA, that the public be notified of significant risks posed by nearby facilities, and that emissions which result in a significant risk be reduced.

2. How do facility operators know what is required of them under the "Hot Spots" Program?

The "Hot Spots" Act requires ARB to adopt a regulation that specifies how local air districts implement the "Hot Spots" Program. In 1989, ARB adopted the Guidelines Regulation which specifies which facilities are subject to air toxics emission inventory reporting, and identifies what information a facility operator must include in the emission inventory plan and inventory report. The local air districts implement the requirements in the Guidelines Regulation as part of their regular "Hot Spots" Program activities. The Guidelines Regulation has been updated several times over the past 17 years to reflect new information, and to streamline the reporting requirements.

3. Why is ARB staff proposing amendments to the Guidelines Regulation?

ARB staff is proposing amendments to the Guidelines Regulation to reflect new regulations regarding diesel engines, and air toxics information compiled since the last update of the Guidelines Regulation in 1997. Specifically, these amendments are

being triggered by the identification of diesel PM as a TAC, and the need to harmonize "Hot Spots" with the stationary diesel engine ATCM, including proposed amendments to the ATCM that address in-use agricultural engines that the Board will consider for adoption in November 2006.

The stationary diesel engine ATCM, which was adopted by ARB in 2004, requires owners and operators of in-use diesel-fueled engines that are used in non-agricultural stationary applications to report to the district information on each engine, to meet specified diesel PM emission standards and operating requirements, and to use clean fuels. Implementation of the ATCM will reduce diesel PM emissions and resulting exposures from stationary diesel engines throughout California. In a large proportion of cases, compliance with the ATCM will bring the potential cancer risk from the stationary diesel engines at a facility below the district's "Hot Spots" risk reduction threshold. While the requirements for in-use engines in the ATCM currently only apply to engines in non-agricultural applications, the ATCM also includes emission standards for new stationary engines, and reporting requirements for the sellers of new stationary diesel engines used in both non-agricultural and agricultural applications. However, as mentioned previously, ARB staff is currently proposing amendments to the ATCM to incorporate requirements for in-use agricultural diesel engines.

The amendments being proposed to the Guidelines Regulation are more fully explained in the following questions and answers. Overall, the amendments are designed to leverage the inventory reporting and risk reductions that are required under the stationary diesel engine ATCM and the proposed ATCM amendments for in-use agricultural engines. The proposed amendments were written to minimize duplicative requirements, and to focus efforts on those facilities that may have significant residual risk after the ATCM is fully implemented. The amendments also include incorporation of the OEHHA Risk Assessment Guidelines and updated health values, and the addition of new substances to the "Hot Spots" list of substances.

4. How have diesel engines been addressed in the past?

Under the current version of the Guidelines Regulation, facilities that emit less than 10 tons per year of a criteria pollutant must meet "Hot Spots" requirements if they use 3,000 or more gallons per year of diesel fuel (crude, residual, distillate, or diesel oil). This reporting threshold was based on speciated diesel exhaust (primarily benzene), rather than the cancer potency factor for diesel PM which was not defined at the time the original threshold was established. Many diesel engine operators have not been subject to "Hot Spots" requirements because of this usage requirement. In August 1998, ARB approved the listing of diesel PM as a TAC, and the Scientific Review Panel concluded that a value of 3×10^{-4} $(ug/m^3)^{-1}$ is a reasonable estimate of unit risk from diesel-fueled engines. With the approval of this unit risk factor, the current "Hot Spots" threshold for diesel engines of 3,000 gallons per year of diesel fuel is no longer health protective. Therefore, the Guidelines Regulation needs to be updated to ensure that diesel engines with potential significant risk will be subject to review under the "Hot Spots" Program.

5. What amendments are being proposed to the Guidelines Regulation?

The proposed amendments include a reporting threshold for diesel engines based on the cancer potency for diesel exhaust particulate (diesel PM), and a method to streamline the reporting and risk evaluations for diesel engines. Staff is also proposing to incorporate the most recent OEHHA Health Risk Assessment Guidelines in the "Hot Spots" Guidelines Regulation. This includes new and updated health values. Updates to the list of substances are also being proposed. Table ES-1 provides a brief summary of the proposed amendments. Additional details and explanations for the amendments are provided in Chapter II.

Table ES-1: Summary of Proposed Amendments to the Guidelines Regulation

Guidelines Regulation Element	Proposed Amendments
Requirements for Diesel Engines	• Create new Section XI that specifies "Hot Spots" requirements for diesel engines. • Augment existing 3,000 gallon diesel fuel reporting threshold with an additional 20 engine hours per year total at a facility reporting threshold for diesel engines. • Establish a "diesel-engine only" classification, which can be used as a basis for streamlining reporting requirements and fees. • Incorporate definitions for diesel engines, emergency use and others that are consistent with the ATCM for stationary diesel engines. • Align reporting requirements with those in the ATCM. • Assess State fees for "diesel engine only" facilities at the State rate for industrywide facilities.
Risk Assessment Guidelines	• Incorporate OEHHA Risk Assessment Guidelines that contain updated health values, including the cancer potency for diesel PM.
Substances Subject to the Program	• Update Appendix A-I with new substances. • Specify that only *respirable* crystalline silica should be reported. • Expand classes of listed substances to include individual species. • Adjust reporting levels (degree of accuracy) to reflect new health values.
Appendix E Source Categories	• Clarify that thermal spraying is subject to reporting.

6. How do the new diesel engine provisions in Section XI of the proposed amendments to the Guidelines Regulation relate to the other requirements in the Guidelines Regulation?

Section XI is being added to the Guidelines Regulation to detail the provisions that specifically apply to stationary diesel engines in the "Hot Spots" Program. It describes how the "Hot Spots" requirements relate to the requirements of the stationary diesel ATCM. In general, the provisions in Section XI supersede other requirements in the Guidelines Regulation for diesel engines.

7. How do the proposed amendments harmonize with the ATCM for stationary diesel engines?

The proposed amendments take advantage of the reporting and risk reductions that are resulting from implementation of the ATCM. For the majority of facilities with diesel engines, compliance with the ATCM will satisfy the "Hot Spots" reporting and risk reduction requirements. Facilities with multiple diesel engines may be subject to "Hot Spots" notification requirements, and may need to achieve additional diesel PM emissions reductions beyond those required by the ATCM in the event that there is significant residual risk at the facility.

8. If a diesel engine is not subject to the ATCM for stationary diesel engines, or if it qualifies for an exemption under the ATCM, is it also exempt from "Hot Spots"?

The "Hot Spots" Program has specific reporting requirements that are independent of other rules, regulations, permit conditions, or other air pollution control laws, including ARB's ATCM for stationary diesel engines. Therefore, an engine that is exempt from the ATCM is not automatically exempt from "Hot Spots" reporting requirements. Many of the diesel engine applications exempted from the ATCM emission reduction requirements are low-risk or at remote locations, and as a result most of these engines will be below "Hot Spots" public notification and risk reduction thresholds.

In other cases, however, there may be compelling public safety or national security reasons that will make implementing risk reduction (engine retrofit or replacement) infeasible for some diesel engine applications, including military tactical support equipment, direct-drive fire pumps that must meet National Fire Protection Association (NFPA) specifications, and stationary diesel engines at nuclear power plants that are subject to the requirements of the United States Nuclear Regulatory Commission. Under the stationary diesel engine ATCM these engines are exempt from meeting the emission limits and performance standards because ARB staff found that it was not feasible to retrofit or replace these engines because of other regulatory or operational requirements that the engines must meet. Based on a review of these diesel engine applications, ARB recommends that districts adopt alternate risk reduction requirements for these categories. Options could include raising, delaying, or waiving risk reduction requirements for these engine applications. Other sources of toxic pollutants at the facility would still be subject to the "Hot Spots" Program and public notification, if triggered, would still be required.

9. Are emissions due to emergency operations subject to "Hot Spots" reporting? How is an emergency defined?

Emergency operations are not subject to "Hot Spots" reporting. Emergency operations are neither routine nor predictable, as stated in Health and Safety Code (H&SC) Section 44303. The definition of emergency use for diesel engine operations is the same definition as in the ATCM. In general, an emergency is a power outage, fire, flood, or sewage overflow.

10. Are portable diesel engines, and diesel engines that are equal to or less than 50 horsepower, subject to "Hot Spots"?

Any equipment that is used as part of "routine and predictable" operations at a facility is potentially subject to "Hot Spots." This includes emissions from portable diesel engines and diesel engines that are equal to or less than 50 horsepower. Because of the variability of size and uses for these engines, under the "Hot Spots" Program, local air districts are responsible for determining what constitutes routine and predictable operations at facilities under their jurisdiction.

Under the proposed amendments, the districts are given discretion to request information on these engines if the district determines that the use of these engines is routine and predictable, and the district determines there is good cause to expect the engines at the facility may pose a significant risk. This means low-risk activities that could be considered routine and predictable by the district are not likely to be subject to "Hot Spots" reporting requirements. It is anticipated that the district will use factors such as distance from the engine to the nearest downwind receptor, hours of operation, and the frequency and type of operations when determining what constitutes a potential significant risk.

11. How will the proposed amendments affect diesel engines used in agricultural operations?

The Board will consider amendments to the stationary diesel engine ATCM to include in-use agricultural engines at the same public hearing as the proposed amendments to the Guidelines Regulation will be considered. The proposed amendments to the ATCM contain an engine registration program that will collect information on agricultural engines in the State. The proposed amendments also include performance standards for engines that will result in significant reductions in diesel PM from these engines as the ATCM is implemented (the existing ATCM already contains performance standards for new agricultural engines). In essence, the registration requirement will satisfy the plan and report emission inventory requirement in the "Hot Spots" Program, and the performance standards will result in compliance with the "Hot Spots" risk reduction requirements for the vast majority of agricultural engines.

In order to minimize duplicative requirements and allow the risk reduction requirements in the ATCM to take effect, ARB staff is proposing to postpone "Hot Spots" applicability requirements for diesel engines at agricultural operations until after 2011. This action is being proposed because the adoption of the ATCM or equivalent district rule or program sets in motion actions to reduce risks in the near future. This schedule allows engine operators five years to focus on cleaning up stationary diesel engines at agricultural operations through the ATCM process before triggering "Hot Spots" requirements.

In addition, ARB, local air districts, and the agricultural industry have agreed to work together in the near-term to identify agricultural engines near schools, residences, or other sensitive sites to ensure that the risk from these engines will be reduced as

quickly and efficiently as possible. This near-term effort will encourage agricultural operators with engines near receptors to take advantage of incentive programs available for agricultural engine electrification (Pacific Gas and Electric's Agricultural Internal Combustion Engine Conversion Inventive Program and Southern California Edison's Time-of-Use Pumping Agricultural Internal Combustion Engine Program) or the Carl Moyer Program. Through this effort, it is anticipated that by the end of 2011 the vast majority of engines that would likely pose a significant risk will have been replaced, and the districts will have already ensured that facilities with new engines being installed will be below the district's risk reduction threshold.

12. How do the revisions to the Guidelines Regulation relate to the San Joaquin Valley Unified Air Pollution Control District's agricultural engine Rule 4702?

The San Joaquin Valley Unified Air Pollution Control District's Rule 4702, "Internal Combustion Engines – Phase 2," establishes requirements for stationary diesel engines used in agricultural and non-agricultural applications. While this rule was specifically adopted to limit the emissions of nitrogen oxides, carbon monoxide, and volatile organic compounds, the requirements were such that the most practical compliance route will be to install a new certified diesel engine. Because of this, the resulting schedule of engine replacements contained in the rule will reduce the emissions and risk due to diesel PM as newer engines replace older engines. The rule has a compliance schedule which calls for the replacement of most non-certified compression ignition agricultural engines with United States Environmental Protection Agency (U.S. EPA) Tier 3 or Tier 4 certified engines by July 1, 2011.

Similar to the discussion above, because a process leading to risk reduction from agricultural engines is already underway due to this rule, the proposed postponement of "Hot Spots" requirements until after 2011 in the Guidelines Regulation will allow these emission reductions to take place before undergoing "Hot Spots" review. ARB, the San Joaquin Valley Unified Air Pollution Control District, and the agricultural industry will also be working together to identify potentially high risk stationary agricultural engines to ensure that the risk from these engines will be reduced below district thresholds as quickly and efficiently as possible.

13. Why should diesel PM be incorporated in the health risk assessment for a facility?

Scientific studies have found that diesel exhaust has a high cancer potency. As a result of these findings, ARB identified diesel exhaust as a toxic air contaminant in August 1998. The OEHHA Health Risk Assessment Guidelines provide an inhalation non-cancer chronic reference exposure level (REL) and an inhalation cancer potency factor based on whole diesel exhaust (gas and particulate matter). The surrogate for whole diesel exhaust is diesel particulate matter (diesel PM), which is the basis for the potential risk calculations.

Because of the high cancer potency of diesel PM and the fact that some facilities operate dozens of diesel engines, it is important that diesel PM be incorporated in a

facility risk assessment. In addition, most diesel emissions from stationary engines take place at ground level. This increases the possibility that significant risks may affect nearby receptors.

Risk assessments for "Hot Spots" are prepared in accordance with guidelines established by OEHHA (generally referred to as the OEHHA Risk Assessment Guidelines). The proposed amendments will incorporate by reference *Part I. The Determination of Acute Reference Exposure Levels for Airborne Toxicants; Part II. Technical Support Document for Describing Available Cancer Potency Factors; Part III. The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*; *Part IV. Exposure Assessment and Stochastic Technical Support Document; and the Air Toxics "Hot Spots" Program Guidance Manual for Preparation of Health Risk Assessments (2003).* These documents have superseded the California Air Pollution Control Officers Association (CAPCOA) Risk Assessment Guidelines (1992), and are already in routine use by air districts.

14. What new substances and health values are being added through the "Hot Spots" amendments?

H&SC Section 44321 requires ARB to compile and maintain a list of substances that are recognized as presenting a chronic or acute threat to public health. This list is based on designated lists of substances compiled by federal and State regulatory programs referenced in the statute. The statute also gives ARB authority to include any additional substances recognized by the Board as presenting a chronic or acute threat to public health when present in the ambient air. The staff has reviewed the lists referenced in H&SC Section 44321, including the list of substances subject to emission reporting under the federal Title III, Section 313 of the Superfund Amendments and Reauthorization Act, also known as the federal Toxics Release Inventory substances. As a result of this review, ARB staff is proposing to update the list of substances to reflect new information. Nine new substances are being proposed for inclusion in the Appendix A-I list of substances for which emissions must be quantified. In addition, minor changes to existing substances are being proposed, such as correction to Chemical Abstracts Service numbers, or correction of the chemical name. For several classes of compounds, the individual substances belonging to those classes are being listed because new health values have been developed for them. For crystalline silica, the term "respirable" refers to particles with mean mass aerodynamic diameter 4 microns or less. Facilities that emit these particles may need to report these emissions to the district. A summary of the changes to the substance list is provided in Table ES-2.

Table ES-2: Updates to List of Substances

New Substances	1) Bromine pentafluoride 2) t-Butyl acetate 3) Hydrogen bromide 4) Hydrogen selenide 5) Oleum 6) Polybrominated diphenyl ethers (PBDEs) 7) Perfluorooctanoic acid (PFOA) and its salts and derivatives 8) Sulfur trioxide 9) Vanadium pentoxide
Specific Substances Added to Chemical Group Already Listed	1) 2-Chlorophenol 2) 4-Nitropyrene 3) 3,3',4,4'-Tetrachlorobiphenyl (PCB 77) 4) 3,4,4',5-Tetrachlorobiphenyl (PCB 81) 5) 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105) 6) 2,3,4,4',5-Pentachlorobiphenyl (PCB 114) 7) 2,3',4,4',5-Pentachlorobiphenyl (PCB 118) 8) 2,3',4,4',5'-Pentachlorobiphenyl (PCB 123) 9) 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156) 10) 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) 11) 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) 12) 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) 13) 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189) 14) Tetrachlorophenols 15) Trimethylbenzenes
Added from Appendix A-II*	1) N-Nitrosodiphenylamine 2) 5-Nitroacenaphthene
Change to CAS Numbers or Chemical Name	1) Cyanide compounds 2) Hexachlorocyclohexanes 3) Nickel carbonate 4) Toluene diisocyanates 5) Xylenes 6) 1,2,3,4,6,7,8,9-Octachlorodibenzofuran
Adjustment of Particle Size for Reporting	1) Silica, respirable crystalline

* These substances were required to be reported in the past but now must be quantified as part of the emission inventory because health values are now available.

15. How should substances with health values but no source test method be addressed under the "Hot Spots" Program?

ARB staff is currently working with districts and industry to determine if new source test methods are available for several substances that are subject to the AB 2588 "Hot Spots" Program, including acrolein and crystalline silica. For most cases, ARB recommends that districts postpone requiring reporting emissions of those substances

until adequate emission factors and source test methods are available. This may entail participation by facilities in the development of source test methods or emission factors until test methods have been identified. These efforts will be coordinated by both ARB and districts, and, to the greatest extent possible, allow businesses to use default screening (health protective) emission factors whenever possible.

16. What effect will incorporating the OEHHA Health Risk Assessment Guidelines and updates to health values and the list of substances have on businesses?

The incorporation of the OEHHA Health Risk Assessment Guidelines and updates to the list of substances may result in facilities needing to update a past health risk assessment. This will likely apply to large facilities that had previously conducted a health risk assessment but did not include diesel engines, or facilities that emit newly listed substances or substances that have new health values that could trigger new requirements. Most updates to the health values will not have a significant impact on expected risk levels. However, based on the updated health values for naphthalene and several other substances, there may be facilities that will need to update their health risk assessment to take into account the new and updated health values. This can be triggered by the district calculating a new prioritization score based on new emissions or new health values for emitted substances. Some districts have already begun this process.

17. What businesses will be affected by the proposed amendments?

Most of the facilities that will be impacted by the proposed amendments to the Guidelines Regulation are facilities that operate any number of stationary diesel (compression ignition) engines for more than 20 hours per year on a routine and predictable basis. These facilities will now be subject to review under the “Hot Spots” Program. Large industrial facilities with diesel engines like refineries and power plants, which had previously been subject to “Hot Spots”, will need to determine whether including the risk from diesel engines will trigger additional “Hot Spots” requirements. Facilities with emergency standby (backup) diesel engines such as office buildings, schools and universities, water treatment plants, hospitals, banks, hotels, wineries, military installations, and prisons may also be subject to the proposed amendments. The district will help these facilities determine if the ATCM satisfies any applicable “Hot Spots” requirements. Also, facilities that emit any of the newly listed substances or substances with updated health values may also now be subject to additional “Hot Spots” requirements.

18. Will all facilities with diesel engines have to pay fees?

There are an estimated 13,500 facilities in California that operate stationary diesel engines. We anticipate that 80% of the 10,650 facilities with a single stationary diesel engine will pay no additional State fees related to “Hot Spots”. In most of these cases, we do not anticipate any new or increased district fees for these facilities. This is because most of these facilities do not exceed the reporting threshold of 20 hrs/year

combined total for the facility, and are therefore not subject to “Hot Spots” reporting. For these facilities, compliance with the ATCM will satisfy “Hot Spots” risk reduction and reporting requirements through compliance with the ATCM. The remaining facilities, those that operate diesel engines more than 20 engine hours per year combined total or have multiple diesel engines, will need to go through the “Hot Spots” review process to determine if there are any applicable State and district fees. Facilities over this threshold with a risk of one or greater are likely to pay an annual State fee, unless they are already subject to “Hot Spots” fees for other sources of toxics at the facility. For these facilities with other toxics, State and district fees could increase from current levels, depending on the diesel risk at the facility.

ARB is proposing to treat diesel engine-only facilities similar to “industrywide” facilities, and use the same fee rate as “industrywide” facilities, which is currently $35 per year. Districts may take a similar approach for these diesel engine-only facilities in order to streamline facility evaluations. Because the State fee rates remain unchanged, it is not necessary to amend the AB 2588 “Hot Spots” Fee Regulation at this time. If the State fee rates in the Fee Regulation need to be changed, those amendments would go through the normal regulatory process.

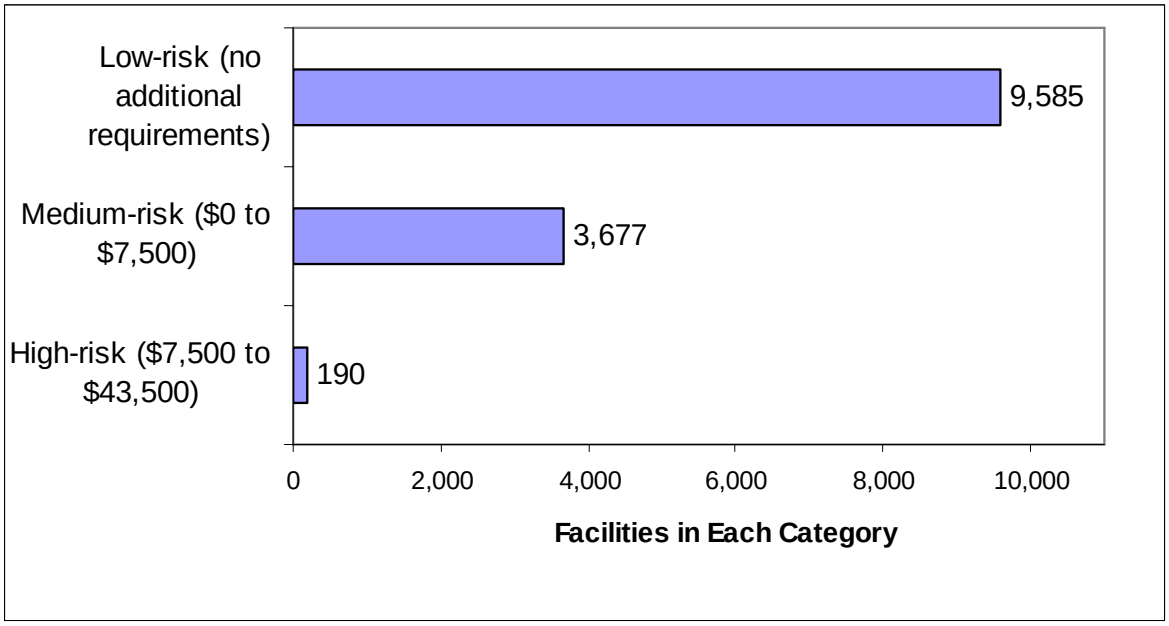
19. What are the economic impacts of the proposed amendments to the Guidelines Regulation?

We estimate the total costs associated with the proposed amendments to the Guidelines Regulation for facilities to be approximately $8.1 million. This corresponds to approximately $2 million dollars annually for four years in the 2007 through 2010 timeframe. The majority of these costs will be borne by facilities with diesel engines that are now subject to “Hot Spots” and have significant residual risk even after compliance with the ATCM. A smaller portion of the costs, about $1 million, will be incurred by facilities that emit substances that have new health values where the emissions of these substances trigger new reporting and health risk assessment requirements.

The cost for a business will likely depend on the number of diesel engines at a facility, the residual risk that remains after compliance with the ATCM, and whether the facility emits other toxics with new health values that trigger additional “Hot Spots” requirements. To determine the cost to a typical business with diesel engines, we used engine information that was submitted to the district pursuant to the reporting requirements in the ATCM. Using this information and estimates of costs associated with compliance with “Hot Spots” (inventory reporting, health risk assessment, State and district fees, and risk reduction), we estimated costs for facilities based on the number of engines at the facility.

A distribution of estimated facility costs is shown in Table ES-3, which summarizes the costs for facilities with stationary diesel engines to comply with the proposed amendments to the Guidelines Regulation. These facilities include businesses, publicly owned facilities, and other government facilities.

Table ES-3: Distribution of Facility Cost Estimates



California businesses are affected by the estimated costs of the proposed amendments to the extent that the implementation of the proposed amendments reduces their profitability. Overall, most affected businesses will be able to absorb the costs of the proposed amendments with no significant adverse impacts on their profitability. This finding is based on the staff's analysis of the estimated change in "return on owner's equity" (ROE).

The analysis found that the overall change in ROE ranges from negligible to a decline of about eight percent. Generally, a decline of more than ten percent in ROE suggests a significant impact on profitability. Because the proposed amendments would not significantly alter the profitability of most businesses, we do not expect a noticeable change in employment, business creation, elimination, or expansion, and business competitiveness in California.

20. What are the environmental impacts of the proposed amendments?

We anticipate no adverse environmental impacts associated with the proposed amendments. In the event a facility takes steps to reduce diesel PM beyond what is required by the ATCM, communities adjacent to facilities operating multiple diesel engines will see a benefit in decreased exposure to diesel PM, and the associated cancer risk.

21. How do the proposed amendments relate to ARB's goals for environmental justice?

Environmental justice is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. ARB's Environmental Justice Policies are intended to promote the fair treatment of all Californians and cover the full spectrum of ARB's activities.

The proposed amendments to the Guidelines Regulation are consistent with the environmental justice policy to reduce health risks from toxic air contaminants in all communities, including low-income communities, and communities of color. The proposed amendments will ensure that potential risks from all engines are evaluated and mitigated where necessary. These amendments will provide air quality benefits for all Californians, particularly those residing in communities located near facilities in the "Hot Spots" Program.

The proposed amendments to the "Hot Spots" Program help to address community concerns about diesel emissions in communities, and cumulative risk from multiple sources of air toxics. The Guidelines Regulation determines which types of facilities must report their emissions, what information is provided to the public about air toxics, and the timeframe for that reporting. ARB staff is committed to providing clear guidance to the districts on which sources are covered by the proposed amendments to the Guidelines Regulation, and how the risk from diesel PM in communities is being addressed.

The "Hot Spots" Program is unique in that it includes emissions from the entire facility to evaluate risk, rather than relying on emission reductions by specific source categories (like stationary engines, boilers, or chrome plating tanks). In this way, the "Hot Spots" Program provides a critical backstop to many other State and district toxics programs that protects nearby receptors from residual risk from sources that are not sufficiently controlled. Although the "Hot Spots" Program may result in significant costs for some large facilities, it protects individuals from the cumulative health impacts that may result from multiple types of emissions from a single facility. This Program provides public right-to-know information about significant air pollution health risks posed by sources of pollution in communities.

22. What public outreach was conducted during the development of the proposed amendments?

In 2003, ARB staff discussed initial concepts for amending the Guidelines Regulation with stakeholders during the development of the ATCM for stationary diesel engines. Engine owners and operators were made aware of AB 2588 "Hot Spots" requirements at the same time that the ATCM requirements were being discussed. The proposed amendments were then revised to reflect comments received from stakeholders.

ARB staff continued to work with stakeholders to align the “Hot Spots” requirements with the ATCM when possible, and then conducted three workshops to discuss the proposed amendments to the Guidelines Regulation and the relationship to other ATCMs. Over 2,000 individuals, agencies, groups, and organizations that had expressed interest in the “Hot Spots” Program and/or the stationary diesel engine ATCM were notified via ARB’s email list serve about the proposed amendments. The listserve includes representatives of business, hospitals, universities, military bases, public utilities, oil companies, and environmental groups. ARB staff also responded to numerous phone and email inquires regarding the proposed amendments, and met individually with stakeholders upon request.

ARB staff has also had monthly discussions with the CAPCOA Toxics and Risk Managers Committee over the past four years. The CAPCOA Board has also discussed the initial proposed changes to the Guidelines Regulation. Changes to the proposed amendments reflect the concerns of the CAPCOA Toxics and Risk Managers Committee and the CAPCOA Board.

23. What future activities are planned?

After Board consideration and approval of the proposed amendments, ARB staff will provide assistance to districts and affected businesses to implement the proposed amendments. ARB will provide screening tables to assist districts and facilities with risk evaluations, and work with districts to develop additional risk tools for more refined facility health risk assessments. ARB will also assist the districts in notifying the public about diesel engines.

24. What is staff’s recommendation?

ARB staff recommends that the Board adopt the proposed amendments to the Emission Inventory Criteria and Guidelines Report described in this staff report, and amend Section 93330.5 of Title 17 of the California Code of Regulations to incorporate the September 2006 Guidelines Report by reference. ARB staff believes the proposed amendments will harmonize the “Hot Spots” requirements for diesel engines with the ATCM, while streamlining the process and ensuring that the risk from all diesel engines subject to the proposed amendments to the Guidelines Regulation are reduced to health protective levels.

I. PROGRAM BACKGROUND AND REQUIREMENTS

Chapter I provides the historical context for the Air Toxics “Hot Spots” legislation and an overview of the requirements of the program, including the role of the Emission Inventory Criteria and Guidelines Report and Regulation (Guidelines Regulation). This chapter also describes the background for the amendments that are being proposed to the Guidelines Regulation. It is important to note that the proposed amendments will streamline the procedure for stationary diesel engines, and as a result they will differ from the standard “Hot Spots” process described in this chapter. This is because the applicable Air Toxic Control Measure (ATCM) or equivalent district program will address most, if not all, “Hot Spots” emission reporting and risk reduction requirements for diesel engines through a separate process, and will eliminate, in most cases, the need to address these requirements through the “Hot Spots” Program.

A. Air Toxics “Hot Spots” Information and Assessment Act

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) and subsequent amendments (the Act or Program; H&SC Sections 44300 through 44394) requires affected facility operators in the State to report the types and quantities of certain substances their facilities release into the air. Facility operators prepare and update emission inventory reports and submit these data to the districts for review and approval. The goals of the “Hot Spots” Act are to collect this emission information and make it available to the public, to identify and prioritize facilities having localized impacts, to assess health risks, and to notify nearby residents of significant risks. As amended in 1992 (by Senate Bill 1731, Calderon), the Act calls for owners of significant-risk facilities to reduce their risks below the level of significance within specified timeframes. The legislation was further amended in 1996 (by Assembly Bill 564), to include provisions to exempt specified low priority facilities from the “Hot Spots” Program, and to reinstate exempted facilities if specified criteria are met.

Under the Act, the Air Resources Board (ARB) has a number of responsibilities. ARB is to develop and adopt an Emission Inventory Criteria and Guidelines Regulation specifying emission reporting requirements and a list of substances covered. ARB is also to develop a program to make the emission data available to the public. The current database that contains the emission inventory is the California Emission Inventory Development and Reporting System (currently CEIDARS Version 2.5). The public can view the stationary source emission data on the web using ARB’s Facility Search Tool at: http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php. The Act also calls for ARB to prepare a report to the legislature on the inclusion of classes of smaller facilities (published in June 1990), and to develop an air toxic emission inventory for mobile, natural, and areawide sources not subject to district permit requirements (initially published in May 1990). ARB has developed an ongoing, annual air toxics emission inventory including stationary, mobile, area-wide, and natural sources for 33 substances. The California Toxics Inventory (CTI) is available on the ARB web site at http://www.arb.ca.gov/toxics/cti/cti.htm. The Act also calls for ARB to adopt a fee regulation to recover the costs of implementing the program.

The Air Toxics "Hot Spots" Program has complemented ARB's existing air toxics identification and control programs. It has identified sources of air toxics not previously under evaluation, and it has provided exposure information needed to prioritize control measures and develop regulatory actions. By making facility operators more aware of their toxic emissions, the program has also generated voluntary reductions in the emissions of air toxics in California. The benefits of these actions include reduced risk to workers and the public, lower operational costs, demonstration of emission reduction options for other sources, and improved community relations.

B. The Air Toxics "Hot Spots" Process

The Air Toxics "Hot Spots" Act directs ARB to compile and maintain a list of substances posing concern for cancer, chronic, or acute health threats, when present in the air. ARB has organized and prioritized the list of several hundred substances which the Act identifies by reference. Facilities which manufacture, formulate, use or release a listed substance and which meet specified applicability criteria, are required to prepare site-specific air toxics emission inventory plans and inventory reports.

For facilities subject to the Act, the facility operator submits a comprehensive, site-specific emission inventory plan to the appropriate air district by a specified date. Each plan specifies how the facility operator will inventory the facility's emissions of toxic substances that appear on the list of substances subject to the Act. These emission inventory plans and reports are reviewed and approved by the local air pollution control and air quality management districts (district), and follow ARB's Guidelines Regulation. After reviewing the emission inventory data, the district ranks facilities into high, intermediate, and low priority categories to determine whether the facility prepares a health risk assessment. In establishing the priorities, the district considers the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential human receptors, and any other factors that the district determines could indicate that the facility may pose a significant risk.

Facilities included in the district's highest priority category prepare a health risk assessment and submit it to the district. A health risk assessment, as defined under the Act, includes a comprehensive analysis of the dispersion of hazardous substances into the environment, the potential for human exposure, and a quantitative assessment of health risks associated with those levels of exposure. Health risk assessments are prepared in accordance with guidelines established by OEHHA. OEHHA has published guidance on calculating health risk assessments in the Air Toxics "Hot Spots" Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003. One of the proposed amendments is the formal incorporation of the OEHHA Risk Assessment Guidelines into the Guidelines Regulation for the "Hot Spots" Program.

Once a risk assessment is reviewed by OEHHA and approved by the district, the district determines if there is a potential significant health risk associated with emissions from a facility. If the district determines that a facility is a significant risk, the facility operator

must notify exposed persons of the risk assessment results. The California Air Pollution Control Officers Association (CAPCOA) has published the Air Toxics "Hot Spots" Program Public Notification Guidelines (October 1992) to assist facility operators with methods for conducting public notification.

Facilities determined to have a significant risk must prepare an air toxic risk reduction audit and develop a plan to implement air toxic risk reduction measures. The audit and plan is submitted to the district within six months of the determination. It must describe the risk reduction methods the facility will use to reduce its risk below the level of significance within five years; however, the district may shorten or lengthen the time period (up to five additional years) under certain conditions. The Act prescribes civil penalties for failure to comply with its provisions, or for knowingly submitting false information.

Under the Act, certain facilities must update their emission inventories to ensure current information is available (H&SC Section 44344). The update requirements substantially reduce the update reporting requirements for most facilities except the significant risk facilities (those required to notify under the program, as discussed below). Low risk facilities are exempt from update reporting.

For small businesses or businesses where compliance with standard "Hot Spots" requirements could create an economic hardship, districts may assign certain classes of facilities to an "industrywide" category. The districts prepare the emission inventory for industrywide categories which are generally subject to lower fees. ARB is recommending to districts that facilities that are brought under "Hot Spots" review due solely to diesel engines be treated in a similar manner to "industrywide" facilities.

C. Emission Inventory Criteria and Guidelines Regulation

The Act directs ARB to adopt an Emission Inventory Criteria and Guidelines Regulation. The Guidelines Regulation specifies criteria for determining which emissions are reported, and guidelines for how those emissions are reported to the local district, including requirements for the inventory plans and reports, the use of source testing and other measurement or estimation methods, and the list of substances to be reported.

The original Emission Inventory Criteria and Guidelines Regulation was approved by the Office of Administrative Law on October 30, 1989. It specifies which facilities are subject to the program, which substances are reported, and how those emissions are reported to the local air district. Amendments to the Guidelines Regulation, adopted by the Board in June 1990, included procedures for preparing updates to the emission inventories and reporting requirements for specific classes of facilities whose emissions of a criteria pollutant did not exceed ten tons per year (less-than-10-ton-per-year facilities). Specific sections of the regulation were amended again in September 1990, June 1991, and June 1993, to reflect additions to the list of substances that must be inventoried, and in 1993 to streamline some of the reporting requirements of the "Hot Spots" Program.

Further amendments, which significantly streamlined the reporting requirements, were approved by the Board in July 1996. The Board approved additional modifications after a public comment period in February 1997, which became effective upon approval by OAL on July 1, 1997. One of the streamlining provisions included detailed requirements that are now contained in a document entitled the Emission Inventory Criteria and Guidelines Report for the Air Toxics "Hot Spots" Program, including Appendices A through G, which has been incorporated by reference into the Guidelines Regulation. The Guidelines Regulation currently in effect is set forth in Title 17, California Code of Regulations (CCR) Sections 93300.5, and is referred to herein as the "1997 Guidelines Regulation".

The 1997 Guidelines Regulation specifies:

- the types of facilities which must report emissions of listed toxic substances;
- the timetable for submitting initial plans, inventory reports and updates;
- the information a facility operator must include in a facility's air toxics emission inventory plan, report, and update;
- source testing requirements for emission estimation, other acceptable emission estimation methods, and the reporting formats to be used; and
- the list of substances that must be inventoried.

D. Proposed Amendments to the Guidelines Regulation

Since the last update to the 1997 Guidelines Regulation, there have been significant advances in our understanding of the health information of toxic air pollutants. Most notably, diesel PM was listed as a toxic air contaminant (TAC) by ARB after an extensive review and evaluation of the scientific literature by OEHHA. (ARB 1998) Diesel PM is by far the most important known TAC and contributes over 70 percent of the estimated inhalation risk from air toxics today. In October 2000 ARB approved the "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles" (Diesel Risk Reduction Plan) which initiated a multi-year effort to reduce exposures from diesel PM throughout the State. (ARB, October 2000) The Diesel Risk Reduction Plan established the goal of reducing diesel PM emissions and the associated cancer risk by 85 percent by 2020. Pursuant to the Diesel Risk Reduction Plan, ARB has adopted several ATCMs to reduce diesel PM, including an ATCM for stationary diesel engines, which was adopted in 2004.

The primary purpose of the proposed amendments to the Guidelines Regulation is to update the "Hot Spots" Program to align it with regulations already in place, and incorporate by reference the OEHHA Health Risk Assessment Guidelines that are already being used by the districts. This update reflects our new understanding of the toxicity of diesel PM, and harmonizes the "Hot Spots" Program with the stationary engine ATCM and the proposed amendments to the ATCM related to in-use stationary diesel engines used in agricultural operations. The 2006 amendments add a new chapter on diesel engine reporting requirements, and other minor revisions and clarifications to bring the Guidelines Regulation up to date. Otherwise, the majority of the Guidelines Regulation is unchanged.

The stationary engine ATCM established emission standards and reporting requirements for stationary diesel engines operating in California. Implementation of the ATCM will result in reduced diesel PM exposures from the operation of stationary diesel engines throughout California. However, for facilities with multiple diesel engines, residual risk at the facility may still be significant even after compliance with the ATCM. For this reason, amendments are being proposed to the Guidelines Regulation that will leverage the risk reduction and reporting that is already occurring under the ATCM, and ensure that any significant residual risk is addressed through the "Hot Spots" Program. In addition, as mentioned previously, the ATCM is currently being amended to include requirements for in-use agricultural engines. The proposed amendments to the ATCM will result in an inventory of agricultural engines in the State and the emissions from agricultural engines will be significantly reduced. Amendments to the Guidelines Regulations are needed to align "Hot Spots" with these new requirements in the ATCM to minimize duplicative requirements, and to minimize regulatory burdens.

It is also necessary to update the Guidelines Regulation to incorporate new risk assessment guidelines and health values that have been developed since the Guidelines Regulation was last updated in 1997. The proposed amendments will incorporate all five parts of the OEHHA Health Risk Assessment Guidelines which include guidance for conducting health risk assessments, and the Consolidated Table of OEHHA-Approved Health Values, which contains updated health values for air toxics. All of these documents are incorporated by reference in Appendix G of the Guidelines Regulation. The list of substances in Appendix A-I of the Guidelines Regulation is also being updated to reflect new information.

E. Public Outreach and Environmental Justice

Any regulatory effort by ARB is undertaken in a full public process. Below we describe the public outreach conducted to obtain input and consultation on the proposed amendments, as well as a discussion of how the proposed amendments relate to ARB's Environmental Justice Policies.

Public Outreach

In 2003, ARB staff began discussions with stakeholders exploring ways to align the Guidelines Regulation with the stationary diesel engine ATCM. The intent was to harmonize the two programs to minimize duplicative requirements for affected facilities, and to ensure that efficient and coordinated requirements were clearly stated in both programs. Workshop participants were made aware of both the ATCM and AB 2588 "Hot Spots" requirements. The proposed amendments to the Guidelines Regulation were then revised to reflect comments received from stakeholders. In addition, ARB staff conducted three public workshops during 2006 that focused on the proposed amendments to the Guidelines Regulation. Over 2,000 participants were notified via ARB's email list serve about the proposed amendments. The list serve is composed of individuals, groups, organizations, and agencies that had expressed

interest in the “Hot Spots” Program or the stationary diesel engine ATCM, and includes representatives of business, hospitals, universities, military bases, public utilities, oil companies, and environmental groups. ARB staff also responded to phone and email inquires regarding the proposed amendments, and met individually with stakeholders upon request.

ARB staff has had numerous discussions with the CAPCOA Toxics and Risk Managers Committee, and the CAPCOA Board has discussed these proposed changes to the Guidelines Regulation. ARB staff also met with stakeholders, including several community groups, at the South Coast Air Quality Management District regarding district public notification procedures and risk assessment requirements.

Environmental Justice

Environmental Justice is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. ARB’s Environmental Justice Policies are intended to promote the fair treatment of all Californians and cover the full spectrum of ARB’s activities.

The proposed amendments to the Guidelines Regulation are consistent with the environmental justice policy to reduce health risks from toxic air contaminants in all communities, including low-income communities, and communities of color. The proposed amendments will ensure that potential risks from diesel engines are evaluated and mitigated where necessary. These amendments will provide air quality benefits for all Californians, particularly those residing in communities located near facilities in the “Hot Spots” Program. The proposed amendments to the “Hot Spots” Program also help to address community concerns about diesel emissions in communities, and cumulative risk from multiple sources of air toxics. The Guidelines Regulation determines which types of facilities must report their emissions, what information is provided to the public about air toxics, and the timeframe for that reporting. ARB staff is committed to providing guidance to the districts on which sources are covered by the proposed amendments to the Guidelines Regulation, and how the risk from diesel PM in communities is being addressed.

The “Hot Spots” Program is unique in that it considers emissions across the entire facility when evaluating risk, rather than relying on emission reductions by specific source categories (like stationary engines, boilers, or chrome plating tanks). In that respect, the “Hot Spots” Program provides a critical backstop to many other State and district toxics programs that protects nearby receptors from residual risk from sources that are not sufficiently controlled. Although the “Hot Spots” Program can be costly for some large industrial facilities, it protects individuals from the cumulative emissions of multiple sources at a single facility. This Program provides public right-to-know information about significant air pollution health risks posed by sources of pollution in communities. This ensures that facilities evaluate their entire facility, rather than taking a piecemeal approach to emission reductions.

II. DISCUSSION OF RECOMMENDED AMENDMENTS

In Chapter II, the proposed amendments to the Guidelines Regulation are described. This chapter begins with a general summary of the proposed amendments, followed by a more detailed description of the proposed amendments and the basis for each amendment. This chapter is intended to satisfy the requirements of Government Code Section 11343.2, which requires that a non-controlling "plain English" summary of the regulation be made available to the public. The actual language for the proposed amendments is presented in Appendix C of this staff report in strike-out underline format.

A. Summary of Proposed Amendments to the Guidelines Regulation

Amendments are being proposed to the Guidelines Regulation to reflect the identification of diesel PM as a TAC, and to harmonize "Hot Spots" requirements with the air toxic control measure (ATCM) for stationary diesel engines. This is being done to avoid duplicative requirements, and to ensure that potential risks from diesel engines are evaluated and mitigated where necessary. To this end, the proposed amendments include augmenting the current reporting threshold for diesel engines, along with provisions to streamline the reporting and risk evaluations for diesel engines that leverage the reporting and risk reductions that are occurring with implementation of the ATCM.

The proposed amendments also include incorporation of revised OEHHA Health Risk Assessment Guidelines, including updated health values. The proposed amendments also include updates to the list of substances to reflect new information. Table II-1 provides a brief summary of the proposed amendments. Additional details and explanations for the amendments are provided in the following sections of this chapter.

B. Diesel Engine Provisions

To reflect the identification of diesel PM as a TAC, and to ensure "Hot Spots" requirements are fulfilled, the proposed amendments incorporate three basic modifications to the Guidelines Regulation. The first is a modification to the reporting threshold for diesel engines. This modification is needed to ensure that emissions from diesel engines that result in potential exposures to nearby receptors are brought into the "Hot Spots" Program and properly evaluated. The second is the inclusion of procedures to specify how diesel engines should be evaluated under "Hot Spots" in light of the inventory and risk reduction activities that are already occurring under the ATCM. The third is the addition of several new definitions to ensure clarity in the procedures, and consistency with the existing ATCM for stationary diesel engines. In this section, we provide details of these proposed changes.

Table II-1: Summary of Proposed Amendments to the Guidelines Regulation

Guidelines Regulation Element	Proposed Amendments
Requirements for Diesel Engines	• Create new Section XI that specifies "Hot Spots" requirements for diesel engines. • Augment existing 3,000 gallon diesel fuel reporting threshold with an additional 20 engine hours per year total at a facility reporting threshold for diesel engines. • Establish a "diesel-engine only" classification, which can be used as a basis for streamlining reporting requirements and fees. • Incorporate definitions for diesel engines, emergency use and others that are consistent with the ATCM for stationary diesel engines. • Align reporting requirements with those in the ATCM. • Assess State fees for "diesel engine only" facilities at the State rate for industrywide facilities.
Risk Assessment Guidelines	• Incorporate OEHHA Risk Assessment Guidelines that contain updated health values, including the cancer potency for diesel PM.
Substances Subject to the Program	• Update Appendix A-I with new substances. • Specify that only *respirable* crystalline silica should be reported. • Expand classes of listed substances to include individual species. • Adjust reporting levels (degree of accuracy) to reflect new health values.
Appendix E Source Categories	• Clarify that thermal spraying is subject to reporting.

1) **Diesel Engine Reporting Threshold**

We are proposing to include a new reporting threshold for diesel engines that will require reporting of emissions for facilities where any number of diesel (compression ignition or CI) engines operate in excess of 20 hours per year total at the facility. This new reporting threshold for diesel engines is included in Appendix E of the proposed amendments to the Guidelines Regulation.

Under the 1997 Guidelines Regulation, facilities with diesel engines must meet "Hot Spots" requirements if the facility uses more than 3,000 gallons per year of diesel fuel (crude, residual, distillate, or diesel oil). This reporting threshold was based on speciated diesel exhaust (primarily benzene), rather than the cancer potency factor for diesel PM which was not defined at the time the original threshold was established. Many diesel engine operators, particularly those with emergency standby engines, have not been subject to the "Hot Spots" requirements because of this usage requirement. In August 1998, ARB approved the listing of diesel PM as a TAC, and the Scientific Review Panel concluded that a value of 3×10^{-4} $(ug/m^3)^{-1}$ is a reasonable estimate of unit risk from diesel-fueled engines. (ARB, 1998)

With the approval of this unit risk factor (cancer potency factor), the current "Hot Spots" threshold for diesel engines of 3,000 gallons per year of diesel fuel was found to no longer be health protective. This triggered a proposed revision to the reporting threshold to ensure that the threshold was health protective.

The proposed 20 hrs/yr reporting threshold ensures that most, if not all, diesel engines with potential significant risk will be subject to review under the "Hot Spots" Program. Facilities that operate their engine(s) for 20 hrs/yr or less are generally low-risk, based on a conservative screening assessment performed during the development of the stationary diesel engine ATCM. (ARB, September 2003) By adopting the 20 hour/year reporting threshold used in the ATCM, the reporting requirements for the two programs are aligned to the greatest extent possible.

Under the proposed amendments, the existing 3,000 gallon per year diesel fuel reporting threshold in Appendix E of the Guidelines Regulation will be retained and still apply for facilities that operate external combustion sources, like diesel-fueled turbines and boilers. These emissions are still required to be reported, but at this time, the speciated toxic air pollutants in the exhaust rather than the diesel PM cancer potency factor are used to determine risk. This is because the cancer potency factor was based on internal combustion, compression ignition diesel engines, and not on external combustion devices. Until more information about external combustion sources is known, risk is evaluated using the speciated toxics (like benzene), rather than the diesel PM cancer potency factor.

2) **Diesel Engine Reporting Requirements**

The proposed amendments also include the addition of procedures that specify how diesel engines should be evaluated under the "Hot Spots" Program. To incorporate the procedures, a new section, "Section XI. Diesel Engine Reporting Requirements" in the Guidelines Regulation, is being proposed. Below, we discuss the proposed reporting requirements for diesel engines that are included in Section XI.

Facilities Subject to Diesel Engine Reporting Requirements

The proposed amendments in Section XI require facilities with diesel engines subject to the Guidelines Regulation to report their emissions if:

- the facility operates any number of diesel engines for more than 20 hours per year combined total at the facility; and
- the use of any number of diesel engines is a "routine and predictable" operation at the facility; and
- the diesel engine is not defined as a vehicle or motor vehicle.

The majority of engines that will meet the above criteria will be stationary diesel engines that are already subject to the ATCM. This would include single emergency standby engines or multiple engines at a facility that operate more than 20 hours per year for maintenance and testing operations, and prime engines such as engines

used in cranes, generators, pumps, and grinders/screening units. It is important to note that engine operations during an actual emergency are not subject to reporting requirements under "Hot Spots" because emergency operations cannot meet the criteria of "routine and predictable".

With these proposed amendments, facilities that operate stationary diesel engines for more than 20 hours combined total per year may now be subject to "Hot Spots" requirements for the first time. These facilities include schools, retail stores, multi-story office buildings, hospitals, government agencies including water treatment, fire, police, courthouses, and jails, and dozens of other types of facilities with stationary diesel engines. It is important to note that the vast majority of these businesses only have one diesel engine, and will likely screen out of the process after compliance with the ATCM because of low risk. Any facility with only a single diesel engine that reduces their engine operating hours to 20 hours per year is no longer subject to the "Hot Spots" Program. The remaining facilities will be handled by the district using a streamlined facility evaluation process, which reduces compliance costs for these facilities.

Facilities with diesel engines that have previously been subject to the "Hot Spots" Program, such as refineries, power plants, and large manufacturing facilities, will be notified by the district if the facility needs to be reevaluated. When the risk from diesel engines is included in the facility's health risk assessment, the facility may be required to update their emission inventory and health risk assessment. Provisions have been added to simplify this process.

There are additional diesel engines that are not subject to the ATCM that may be subject to the "Hot Spots" Program. These include portable diesel engines and engines equal to or less than 50 horsepower (hp). The ATCM does not apply to portable engines and in-use engines equal to or less than 50 hp, but does include reporting requirements and emission standards for the sellers of new engines $\leq$50 hp.

Portable diesel engines, and diesel engines equal to or less than 50 hp, that are part of "routine and predictable" operations and operate more than 20 engine hours per year combined total at a facility are subject to the "Hot Spots" Program at district discretion. Consistent with the past implementation of the "Hot Spots" Program, local districts determine what constitutes "routine and predictable" operations. Under the proposed amendments, the emissions from these engines are only required to be reported if the district determines there is good cause to expect the engines at the facility may pose a significant risk. This means low-risk activities that could be considered routine and predictable by the district are not likely to be subject to "Hot Spots" reporting requirements. It is anticipated that the district will use factors such as distance from the engine to the nearest downwind receptor, hours of operation, and the frequency and type of operations when determining what constitutes a potential significant risk.

Reporting Requirements for Facilities with Diesel Engines

Because most of the information that the district needs to evaluate facilities with diesel engines has already been submitted by facilities pursuant to the ATCM for stationary

diesel engines, the proposed amendments specify that the district shall determine if the ATCM information is sufficient, or whether more information is necessary. For almost all facilities with diesel engines, the ATCM's reporting or registration requirements will fulfill the "Hot Spots" reporting requirements. The ATCM required information about the engine owner or operator, engine location, make, model, and horsepower of the engine, operational data such as hours of operation, engine load, and fuel usage. The ATCM and the proposed amendments to the Guidelines Regulation also request data that will help evaluate the potential risks from diesel engines, such as distance to the nearest offsite receptor, stack diameter, and diesel PM emission rate.

For stationary diesel engines, this information was required to be submitted to the districts by July 2005. As such, compliance with the ATCM has satisfied the reporting requirements under the proposed amendments for these engines. The amendments also require the districts to submit the diesel PM inventory from each facility subject to the Guidelines Regulation to ARB, and to provide, upon request by ARB Executive Officer, a list of facilities with diesel engines and their status in the "Hot Spots" Program. ARB will use this information to assess progress on the status of risk reduction.

Risk Analysis Procedures for Facilities with Diesel Engines

The proposed amendments establish a process that allows districts to conduct an initial screening health risk assessment using screening risk assessment tables to determine if a facility is potentially subject to "Hot Spots" requirements. The screening process would apply to engines at facilities where stationary diesel engines operated more than a total of 20 hours per year. If the district calculates a prioritization score for the facility and the facility prioritization score is equal to or less than one, the facility is considered low priority and is exempt from the "Hot Spots" Program (H&SC Section 44344.4). A facility with a prioritization score of 10 or less is not subject to State fees. If a screening health risk assessment or full health risk assessment for a facility indicates that the cancer risk is less than one (and the non-cancer risk is less than 0.1), the facility is not subject to the "Hot Spots" Program. A facility with a cancer risk greater than or equal to one, or a health index for non-cancer risk of greater than or equal to 0.1, may be subject to State fees and other applicable "Hot Spots" requirements.

ARB staff developed screening tables to provide districts and facilities with a tool to quickly screen out low risk facilities. The screening tables are based on a conservative generic risk assessment for stationary diesel-fueled engines and represent a range of emission rates and hours of operation bracketing a fairly broad range of possible operating scenarios. Meteorological data from West Los Angeles (1981) was used to provide meteorological conditions with lower wind speeds and more persistent wind directions, which will result in less pollutant dispersion and higher estimated risk.

The screening tables use U.S. EPA's ISCST3 air dispersion model to estimate the annual average diesel PM concentration at the point of maximum impact. The potential cancer risk was calculated following OEHHA's Health Risk Assessment Guidelines and it was assumed that the most impacted individuals would be exposed to modeled diesel PM concentrations for 70 years. This exposure duration represents an "upper-bound"

of the possible exposure duration. The potential cancer risk was estimated by multiplying the modeled current annual average concentrations of diesel PM, by the unit risk factor for diesel PM. As such, the screening tables will likely overestimate the potential risk from an engine, and are a useful tool in determining if an engine is below the risk threshold or if a more comprehensive health risk assessment is necessary. The screening tables are available on ARB's Internet site at http://www.arb.ca.gov/ab2588/diesel/diesel.htm.

The proposed amendments also allow a facility with an existing health risk assessment to request that the district recalculate a health risk assessment by adding a screening health risk assessment score for diesel PM to the current health risk assessment for the facility. If the combined risk indicates that the facility is a potential significant risk, the district may require the facility to complete a full health risk assessment. If the score indicates that the facility is not a significant risk, the health risk assessment is recalculated to reflect the diesel risk, and the facility is classified as an "Intermediate-Level" facility. The revised health risk assessment must be approved by the district.

Alternative Risk Reduction Requirements for Unique Diesel Engine Applications

There may be compelling public safety or national security reasons that make implementing risk reduction (engine retrofit or replacement) infeasible for some diesel engine applications, including military tactical support equipment, direct-drive fire pumps that must meet National Fire Protection Association (NFPA) specifications, and stationary diesel engines at nuclear power plants that are subject to the requirements of the United States Nuclear Regulatory Commission. Under the stationary diesel engine ATCM these engines were exempt from meeting the emission limits and performance standards because ARB staff found that it was not feasible to retrofit or replace these engines because of other regulatory or operational requirements that the engines must meet. Based on a review of these diesel engine applications, ARB recommends that districts adopt alternate risk reduction requirements for these categories. Options could include adjusting, delaying, or waiving risk reduction requirements for these engine applications. Other sources of toxic pollutants at the facility would still be subject to the "Hot Spots" Program and public notification, if triggered, would still be required. Additional detail and discussion on these engines is provided in Chapter IV.

Proposed Streamlined Requirements for Diesel Engine Only Classification

The proposed amendments include streamlined provisions for diesel engine-only facilities. A diesel engine-only facility is a facility where the only potentially significant source of toxic emissions are diesel engines. A diesel engine-only facility can be a facility with only diesel engines and no other sources of toxics, or it can be a facility with diesel engines and other sources of toxics provided the facility is designated as "Low-Level" (prioritization score, screening risk assessment, or health risk assessment less than one). Diesel engine-only facilities are eligible for modified requirements for inventory reporting, risk assessment, and fees. These streamlined provisions are briefly described here:

- A diesel engine-only facility that reduces operating hours for all diesel engines to less than 20 engines hours per year combined total is not subject to the Guidelines Regulation or State fees.
- State fees for diesel engine-only facilities will be assessed at the "Industrywide" facility rate ($35/year) if applicable.

Diesel Engines at Agricultural Operations

The Board will consider amendments to the stationary diesel engine ATCM to include in-use stationary diesel agricultural engines at the November 16-17, 2006, ARB public hearing. This is the same public hearing at which the proposed amendments to the Guidelines Regulation will be considered. ARB staff is proposing to delay "Hot Spots" applicability requirements for stationary agricultural diesel engines until after 2011 because the adoption of the ATCM or equivalent district rule or program sets in motion actions to reduce risks in the near future. This schedule allows engine operators five years to focus on cleaning up stationary agricultural diesel engines through the ATCM process before triggering "Hot Spots" requirements for those engines.

The ATCM contains provisions for registration of agricultural diesel engines with local air districts. This registration program, or an equivalent district program, will satisfy the "Hot Spots" emission inventory reporting requirement in most, if not all, cases. The requirements of the ATCM are also structured so that compliance with the ATCM will satisfy "Hot Spots" risk reduction requirements in most cases. In essence, the ATCM already contains the "Hot Spots" emission inventory requirement, and allows the facility to move directly to the risk reduction phase. Although not all engines will be replaced by the end of 2011, the vast majority of engines that could pose a significant risk will have been replaced, and the districts will have already ensured that new engines being installed will be below the district's risk reduction threshold.

The intent of these amendments is to ensure that there is no significant residual risk after the implementation of the ATCM or equivalent district program for stationary agricultural diesel engines. ARB, local air districts, and the agricultural industry have agreed to work together in the near-term to identify agricultural engines near schools, residences, or other sensitive sites to ensure that the risk from these engines will be reduced below district thresholds as quickly and efficiently as possible. This near-term effort will encourage agricultural operators with engines near receptors to take advantage of incentive programs available for agricultural engine electrification (Pacific Gas and Electric's Agricultural Internal Combustion Engine Conversion Inventive Program and Southern California Edison's Time-of-Use Pumping Agricultural Internal Combustion Engine Program) or the Carl Moyer Program. In this way, growers will comply with both the proposed ATCM, and "Hot Spots".

3) **Supporting Definitions for Diesel Engine Reporting Requirements**

Eleven definitions are proposed for inclusion in the Guidelines Regulation to help clarify and enforce the requirements and to ensure harmonization with the ATCM. Whenever

possible, the same definition that is used in the ATCM is proposed for the Guidelines Regulation. A list of the 11 definitions are provided in Table II-2.

Table II-2: Definitions Proposed for Inclusion in the Guidelines Regulation

Agricultural Operations
Approach Light System with Sequenced Flasher Lights in Category 1 and Category 2 Configurations
Diesel Engine or Compression Ignition (CI) Engine
Diesel Engine-Only Facility
Diesel Particulate Matter
Emergency Operations
Emergency Use
Maintenance and Testing
Portable Diesel Engine
Routine and Predictable
Stationary Diesel Engine ATCM

C. OEHHA Health Risk Assessment Guidelines

The "Hot Spots" Act requires that health risk assessments be prepared in accordance with guidelines established by OEHHA. OEHHA has adopted new Health Risk Assessment Guidelines since the Guidelines Regulation was last updated in 1997. The proposed amendments will incorporate by reference the OEHHA Health Risk Assessment Guidelines, which include: *Part I. The Determination of Acute Reference Exposure Levels for Airborne Toxicants; Part II. Technical Support Document for Describing Available Cancer Potency Factors; Part III. The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*; *Part IV. Exposure Assessment and Stochastic Technical Support Document: and the Air Toxics "Hot Spots" Program Guidance Manual for Preparation of Health Risk Assessments (2003).* These documents have superseded the CAPCOA Risk Assessment Guidelines (1992), and are already in routine use by air districts.

D. Updated Substances and Health Values

The amendments propose updating substances listed in Appendix A-I of the Guidelines Regulation. H&SC Section 44321 requires ARB to compile and maintain a list of substances that are recognized as presenting a chronic or acute threat to public health in designated lists of substances compiled by federal and State regulatory programs referenced in the statute. The statute also gives the Air Resources Board authority to include any additional substances recognized by the Board as presenting a chronic or acute threat to public health when present in the ambient air. The staff has reviewed the lists referenced in H&SC Section 44321 and the list of substances subject to emission reporting under the federal Title III, Section 313 of the Superfund

Amendments and Reauthorization Act (SARA 313), also known as the federal Toxics Release Inventory (TRI) substances. As a result of this review, ARB staff is proposing adding new substances and modifying existing substances to the list and updating health values for some substances already on the list. The proposed modifications are discussed below and summarized in Table II-3.

New and Modified Substances

ARB is required to compile and maintain a list of substances that reflect substances of concern identified by other agencies and scientific bodies. Currently, substances may be added to "Hot Spots" from ARB's own list of TACs, EPA list of Hazardous Air Pollutants (HAPs), International Agency for Research on Cancer (IARC), California's 1986 Proposition 65 (Prop 65), National Toxicology Program (NTP), Hazard Evaluation System and Information System (HESIS), and any other substances identified by ARB as causing concern to public health.

ARB staff evaluated the substances that have been added to the lists specified in the Health and Safety Code since the "Hot Spots" Guidelines Regulation was last updated. Staff of ARB and OEHHA reviewed the available information regarding manufacturing, use, and health effects of the substances. Based on the review, nine new substances are being proposed to be added to the Appendix A-I list of substances (substances for which emissions must be quantified). For several compounds minor changes are being proposed including corrections to Chemical Abstracts Service (CAS) numbers or correction to chemical nomenclature. For several classes of compounds, the individual substances belonging to those classes are being listed because new health values have been developed for them.

All but two of these substances have OEHHA-approved health values and are already being included in new health risk assessments for cancer and non-cancer effects. The remaining two substances (PBDEs and PFOA), have been found to bioaccumulate in humans, and are being proposed for inclusion in the list of substances. Only a very small number of facilities are likely to emit these two substances, but the emissions information will be useful for ARB to track these two persistent, bioaccumulative, and toxic substances.

Substances that have OEHHA-adopted health values, and that belong to classes of substances currently included in Appendix A of the Guidelines Regulation, are proposed to be added to Appendix A-I. This includes 11 dioxin-like PCBs, and several other toxics, as shown in Table II-3. More information about additional substances that are still being considered for addition to Appendix A is available at: http://www.arb.ca.gov/ab2588/substances.htm. This includes substances already reported to US/EPA as part of the Toxic Release Inventory reporting requirements.

Table II-3: Updates to List of Substances

New Substances	1) Bromine pentafluoride 2) t-Butyl acetate 3) Hydrogen bromide 4) Hydrogen selenide 5) Oleum 6) Polybrominated diphenyl ethers (PBDEs) 7) Perfluorooctanoic acid (PFOA) and its salts and derivatives 8) Sulfur trioxide 9) Vanadium pentoxide
Specific Substances Added to Chemical Group Already Listed	1) 2-Chlorophenol 2) 4-Nitropyrene 3) 3,3',4,4'-Tetrachlorobiphenyl (PCB 77) 4) 3,4,4',5-Tetrachlorobiphenyl (PCB 81) 5) 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105) 6) 2,3,4,4',5-Pentachlorobiphenyl (PCB 114) 7) 2,3',4,4',5-Pentachlorobiphenyl (PCB 118) 8) 2,3',4,4',5'-Pentachlorobiphenyl (PCB 123) 9) 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156) 10) 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) 11) 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) 12) 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) 13) 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189) 14) Tetrachlorophenols 15) Trimethylbenzenes
Added from Appendix A-II*	1) N-Nitrosodiphenylamine 2) 5-Nitroacenaphthene
Changes to CAS Numbers or Chemical Name	1) Cyanide compounds 2) Hexachlorocyclohexanes 3) Nickel carbonate 4) Toluene diisocyanates 5) Xylenes 6) 1,2,3,4,6,7,8,9-Octachlorodibenzofuran
Adjustment of Particle Size for Reporting	1) Silica, respirable crystalline

*These substances were required to be reported in the past but now must be quantified as part of the emission inventory because health values are now available.

The degree of accuracy for each new substance was calculated such that a prioritization score based on those emissions would be approximately one. This ensures that toxics are reported to a level that is health protective. A facility that emits a toxic in an amount that is less than one-half the degree of accuracy is ensured that those emissions will not contribute to the risk at the facility.

Part of the CAPCOA Risk Assessment Guidelines (1992) includes chronic reference exposure levels (RELs) for substances that do not have an OEHHA-approved health value. Because the CAPCOA document is being replaced by the OEHHA Health Risk Assessment Guidelines, approximately 40 substances will no longer be used to calculate chronic risk. After reviewing 2001-2004 facility inventories, ARB staff found that these substances very rarely contribute to the overall chronic risk at facilities. In cases where a chronic risk could be significant, the cancer risk predominated.

Substances with Updated Health Values

The Office of Environmental Health Hazard Assessment (OEHHA) has updated many of the health values (chronic and acute reference exposure levels (RELs) and cancer potencies) for substances required to be reported under the AB 2588 "Hot Spots" Program. These health values are listed in the April 2005 Consolidated Table of OEHHA / ARB Approved Health Values, incorporated by reference in Appendix G of the proposed amendments to the Guidelines Regulation. Most of the new health values impact a small number of facilities, because most facilities do not emit those substances, and most of these changes will not trigger additional requirements for facilities. In fact, most of the health values are already being used by facilities and districts in facility prioritization scores and health risk assessments with little recognized effect on facility program requirements. Diesel PM is unique in that so many facilities are impacted by the new cancer potency for diesel PM.

E. Miscellaneous Revisions

The staff proposes a number of other clarifications and minor revisions that clarify the intent of the Guidelines Regulation and reflect updated information.

Clarification to Appendix E to Include Thermal Spraying

There are approximately 37 facilities that conduct thermal spraying in California. All of these facilities are subject to ARB's Thermal Spraying ATCM (Section 93102.5, Title 17, California Code of Regulations), adopted by the Board in 2004. According to Appendix E of the regulation, facilities where "…miscellaneous plating, polishing, coating, engraving, and allied services, if using hexavalent chromium, nickel, or cadmium" are subject to the regulation. Thermal spraying can emit hexavalent chromium, but the hexavalent chromium is formed during the spraying process and is not a component of the materials being used. However, because the original intent was to evaluate facilities that emit hexavalent chromium, and many districts interpreted the Appendix E provision to include thermal spraying, ARB is proposing to explicitly include thermal spraying in the definition. This will have a negligible impact on both new and existing facilities because ARB's thermal spraying ATCM already addresses the risk at these facilities.

Other Revisions

Several minor revisions to reporting requirements for non-diesel sources are also included in the proposed amendments, such as providing for electronic submittals of inventory data. In addition, other minor revisions are being proposed to clarify the original language to ensure consistency in interpreting and complying with the regulation.

III. ECONOMIC AND ENVIRONMENTAL IMPACTS

A. Economic Impacts

In this chapter, we provide the estimated costs to businesses and public agencies to comply with the proposed amendments to the Guidelines Regulation. The potential economic impacts on California businesses are also evaluated. This analysis does not include the costs associated with complying with elements of the "Hot Spots" Program not being amended, other ATCMs, or other regulations that may affect facilities subject to the amendments.

It is important to note that while some facilities may incur additional costs due to the proposed amendments to the Guidelines Regulation, this is not a function of adding new requirements to the Program. Rather, the additional costs reflect a better understanding of the impacts of toxic air emissions on public health. The proposed amendments reflect this new health information which has been compiled since the last update to the 1997 Guidelines Regulation. The primary effect of this new information will be that the health risk posed by certain types of toxic emissions may now trigger "Hot Spots" requirements at facilities. The proposed amendments to the Guidelines Regulation do not change the inventory reporting, public notification, and risk reduction requirements, which form the basis of the "Hot Spots" Program. Only the reporting threshold for facilities with diesel engines, the emission inventory format, updates to risk assessment guidelines, and the list of substances are proposed to be amended. In the following sections, we provide a summary of the costs and the legal requirements that must be satisfied in analyzing the economic impacts to businesses.

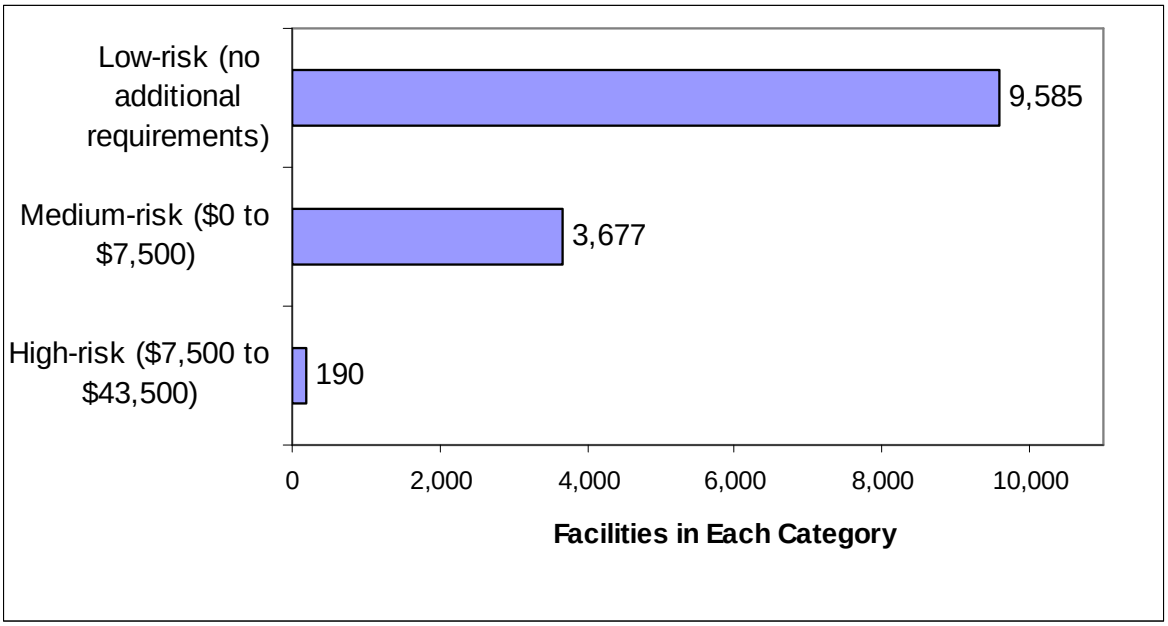
B. Summary of the Costs and Economic Impacts

We estimate the total costs associated with the proposed amendments to the Guidelines Regulation for facilities to be approximately $8.1 million. This corresponds to approximately $2 million dollars annually for four years in the 2007 through 2010 timeframe. The majority of these costs will be borne by facilities with diesel engines that are now subject to "Hot Spots" and have significant residual risk even after compliance with the ATCM. A smaller portion of the costs, about $1 million, will be incurred by facilities that emit substances that have new health values where the emissions of these substances trigger new reporting and health risk assessment requirements.

The cost for a business will likely depend on the number of diesel engines at a facility, the residual risk that remains after compliance with the ATCM, and whether the facility emits other toxics with new health values that trigger additional "Hot Spots" requirements. To determine the cost to a typical business with diesel engines, we used engine information that was submitted to the district pursuant to the reporting requirements in the ATCM. Using this information and estimates of costs associated with compliance with "Hot Spots" (inventory reporting, health risk assessment, State and district fees, and risk reduction), we estimated costs for facilities based on the number of engines at the facility.

A distribution of estimated facility costs is shown in Table III-1, which summarizes the costs for facilities with stationary diesel engines to comply with the proposed amendments to the Guidelines Regulation. These facilities include businesses, publicly owned facilities, and other government facilities.

Table III-1: Distribution of Estimated Facility Costs



Source: Estimates based on available information, and reported engine information from facilities complying with the stationary diesel engine ATCM.

Low-risk facilities include single-engine facilities, and facilities with no additional requirements. Medium-risk facilities include facilities with risks between one and 10 per million, which include facilities that have conducted health risk assessments and determined that their risk is not significant. High-risk facilities include facilities with risks greater than 10 per million. High-risk facilities conduct public notification, and it was assumed that 80 of those facilities would be required to reduce their risk below the district's risk reduction threshold. The underlying cost assumptions and other details are provided in Tables D-1, D-2, D-3, and D-4.

California businesses are affected by the estimated costs of the proposed amendments to the extent that the implementation of the proposed amendments reduces their profitability. Overall, most affected businesses will be able to absorb the costs of the proposed amendments with no significant adverse impacts on their profitability. This finding is based on the staff's analysis of the estimated change in "return on owner's equity" (ROE).

The analysis found that the overall change in ROE ranges from negligible to a decline of about eight percent. Generally, a decline of more than ten percent in ROE suggests a significant impact on profitability. Because the proposed amendments would not

significantly alter the profitability of most businesses, we do not expect a noticeable change in employment, business creation, elimination, or expansion, and business competitiveness in California.

All the cost estimates provided in this chapter are relative to the year 2006 (current value of the costs), and all costs are given in 2006 dollars. The information, assumptions and methodologies used to determine compliance costs are summarized in this chapter. Supporting information is provided in Appendix D of this staff report.

C. Legal Requirements

Section 11346.3 of the Government Code requires that, in proposing to adopt or amend any administrative regulation, State agencies shall assess the potential for adverse economic impacts on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states. This economic impact analysis is based on a comparison of the "return on owners' equity" (ROE) for affected businesses before and after the inclusion of the amendments. The assessment shall also include the potential impact of the regulation on California jobs; business expansion, elimination or creation; and the ability of California business to compete with businesses in other states.

Also, State agencies are required to estimate the cost or savings to any State or local agency and school district in accordance with instructions adopted by the Department of Finance. The estimate shall include any non-discretionary cost or savings to local agencies, and the cost or savings in federal funding to the State.

Moreover, H&SC Section 43013(c) prohibits regulatory actions affecting nonvehicular engines (e.g. stationary diesel engines) used in agricultural operations unless ARB determines that the standards and other requirements are necessary, cost-effective, and technologically feasible for such engines.

Finally, H&SC Section 57005 requires ARB to perform an economic impact analysis of submitted alternatives to the proposed regulation before adopting any major regulation. A major regulation is defined as a regulation that will have a potential cost to California business enterprises in an amount exceeding ten million dollars in any single year. Because the estimated cost of the proposed amendments to the Guidelines Regulation do not exceed ten million dollars in a single year, the proposed regulation is not considered a major regulation.

The following is a description of the methodology used to estimate costs, as well as ARB staff's analysis of the economic impact on California businesses and State and local agencies.

D. Methodology for Estimating Costs

In this section, we describe how we estimated the costs associated with the proposed amendments. Cost estimates were developed for facilities with diesel engines and for

facilities that emit substances other than diesel that have new health values such as crystalline silica, acrolein, and naphthalene. Briefly, the methodology for estimating costs for facilities with diesel engines entailed:

- Estimating costs associated with "Hot Spots" including the costs for inventory reports and updates, health risk assessments, public notification, risk reduction, and State and district fees;
- Estimating the number and distribution of facilities with one engine, two engines, three to four engines, and five or more engines using the data reported pursuant to the ATCM;
- Identifying the "Hot Spots" Program costs for facilities with diesel engines taking into account expected compliance with the ATCM, need for additional evaluations under "Hot Spots" and assumptions on residual risk; and
- Applying the appropriate costs to the number of facilities within each engine category (one engine, two engines, three to four engines, or five or more engines) that are expected to implement various "Hot Spots" requirements applicable to those facilities.

For facilities that emit substances with new health values we:

- Estimated the costs associated with "Hot Spots" including emission inventory reporting, health risk assessment, and source testing requirements;
- Determined the number of facilities that emit naphthalene, crystalline silica, or acrolein at levels that could potentially trigger additional "Hot Spots" requirements from a review of facility data in the California Emissions Inventory Database and Reporting System; and
- Applied the appropriate "Hot Spots" costs to the number of facilities identified.

In addition to estimating the costs for facilities with diesel engines and for facilities that emit substances with new health values, we discuss the potential costs to the districts, and the State (ARB and OEHHA) of implementing the proposed amendments to the Guidelines Regulation.

E. Estimated Costs for Compliance

Facilities with Diesel Engines - Estimated Costs for "Hot Spots" Program Activities

Table III-2 provides a summary of the range of potential costs for each of the "Hot Spots" Program requirements. These estimates are based on discussions with district staff, facility operators, and environmental consultants, and represent the low and high cost estimates. In our cost analysis, we estimated a typical cost for an average facility which was within the range of the costs presented in Table III-2. It is likely that some complex facilities may have higher costs than those represented in this chapter. A more detailed list of potential "Hot Spots" Program costs associated with the proposed amendments is presented in detail in Appendix D of this staff report.

Table III-2: Estimated Costs for "Hot Spots" Program Activities

Activity Required by "Hot Spots"	Range of Costs for Facilities with Diesel Engines	
	Low-Risk Estimate ($)	High-Risk Estimate ($)
Prepare Inventory Plan and Report or Update	0 - 500	1,500
Conduct Health Risk Assessment	0 - 2,500	1,000 - 20,000
Conduct Public Notification	0 - 1,000	1,000 - 20,000
Conduct Risk Reduction	0 - 1,000	30,000*
Pay State and District Fee	0 - 35	4,000 - 8,000
Combined Totals**	0 to $5,035	$37,500 to $78,000

*The facility cost includes the replacement of a single diesel engine (~250 hp). Some facilities may have to replace more than one engine, or replace an engine that is much larger, which will increase the costs for risk reduction.

** For a small number of facilities, additional costs may accrue from activities such as conducting source testing. Although most facilities are not required to conduct source testing, costs for source tests can range from $8,000 to $80,000, with additional costs and district fees for observing and reviewing source tests. Because the ATCM was structured to minimize the need for source testing by allowing other information such as engine manufacturer's data and emission test data from similar engines to demonstrate engine emission rates, we did not include any costs associated with source testing in our estimates.

Number of Facilities and Distribution of Diesel Engines

To estimate the number of facilities with diesel engines, and to determine the number of diesel engines at each facility, we relied on the diesel engine data reported to the districts pursuant to the stationary diesel engine ATCM. At the request of ARB staff, several districts provided information on 12,600 of the estimated 21,000 stationary diesel engines in operation statewide. The 12,600 engines are at about 8,100 different facilities, which represent about 60% of the statewide total, and we believe this population is a representative sample of all facilities with diesel engines.

Facilities operating stationary diesel engines were broken down into four categories as shown in Table III-3. These categories were selected because they represent natural breaks in the data, and we anticipate that facilities within these categories would be subject to similar costs from the proposed amendments.

Table III-3: Distribution of Facilities with Stationary Diesel Engines from Data Submitted to ARB by Districts

	# of Engines	# of Facilities
	1	6,390
	2	920
	3 or 4	495
	5 or more	267
Total	**12,600**	**8,072**

Assuming that the diesel engine data is representative of the overall distribution of diesel engines, the estimate of the projected distribution of facilities statewide based on an estimated statewide stationary diesel engine population of 21,000 is shown in Table III-4.

Table III-4: Projected Statewide Distribution of Facilities Operating Stationary Diesel Engines Assuming a Statewide Inventory of 21,000 Stationary Diesel Engines

	# of Engines	# of Facilities (Adjusted)	% of Facilities
	1	10,650	79.2
	2	1,533	11.4
	3 or 4	825	6.1
	5 or more	444	3.3
Total	**21,000**	**13,452**	

The distribution may have an inherent bias towards a higher percentage of large facilities given that most of the largest facilities, like military bases, universities, and other publicly-owned facilities, are likely to have already submitted engine information to the local air district. Smaller businesses with single emergency standby (backup) diesel engines are less likely to have submitted data, and in some cases are just beginning to be subject to district permit programs. Therefore, because the costs increase for facilities with more diesel engines, the analysis may overestimate the total compliance costs for facilities in California.

Facilities with Diesel Engines - Estimated Program Costs

In the following discussion, ARB staff provides cost estimates for each of the four facility categories. As mentioned previously, ARB staff used information gathered from several different sources when estimating compliance costs for facilities and the percentage of facilities that would be subject to specific program requirements. Many district staff provided a range of costs for various program requirements, and ARB staff

spoke with facility operators and consultants when estimating the numbers of facilities that may fall into each facility category and the costs associated with those categories.

A key determinant of a facility's compliance costs with the proposed amendments is the number of affected diesel engines at a facility. Most facilities with one emergency standby (backup) engine will have virtually no cost due to these amendments, because compliance with the stationary diesel ATCM will satisfy the "Hot Spots" requirements. Facilities that are located far from receptors also will likely comply with "Hot Spots" requirements because the risk from the facility will likely be low. Facilities like military bases and other large facilities with engines spread out over a large geographic area also tend to have lower risk. The risk is based on the relative location of each of the engines within the facility to nearby receptors. Facilities with multiple engines in populated areas may have additional "Hot Spots" costs depending on the number of engines, type(s) of engines, and the proximity of receptors.

For each of the four categories (one engine, two engines, three to four engines, or five or more engines), ARB staff estimated how many facilities in each category would likely be subject to additional "Hot Spots" program requirements, what program elements would need to be addressed, and how much those activities are likely to cost. ARB staff also estimated how many facilities in each category are likely to comply with "Hot Spots" (low-risk), and how many facilities are likely to incur additional requirements (high-risk). A summary of our assumptions used to apply the various cost elements is provided in Table III-5, and additional details are provided in Appendix D of this staff report.

Using the assumptions provided in Table III-5, and applying them to the engines in each facility category where the assumption is applicable, we estimated the total costs for compliance with the proposed amendments. As shown in Table III-6, the total cost of the proposed amendments for facilities with stationary diesel engines is estimated to total approximately $7.2 million dollars over 4 years.

We believe that these cost estimates represent an upper bound for most facilities. However, some facility costs could be higher than those in this analysis if the facility emits several new substances, or operates multiple high-emitting diesel engines near receptors.

Table III-5: Cost Assumptions for Facilities with Stationary Diesel Engines

Facility Category	Lower-Risk Facility	Average Cost	Higher Risk Facility	Average Cost* (Range of Costs)
1 Engine (10,650 Facilities)	8,520 facilities exempt from "Hot Spots"	$0	1,065 facilities only subject to fees	$235
2 Engines (1,533 Facilities)	1,226 facilities only subject to fees	$235	307 facilities conduct simplified health risk assessment, 40 facilities conduct public notification, 15 facilities reduce risk by replacing an engine	$3,631 ($2,035 to $33,035)
3 or 4 Engines (825 Facilities)	495 facilities only subject to fees	$335	350 facilities conduct a health risk assessment, 50 facilities conduct public notification, and 25 facilities reduce risk by replacing an engine	$5,470 ($500 to $39,500)
5 or More Engines (444 Facilities)	222 facilities pay fees	$500	222 facilities conduct a health risk assessment, 100 facilities conduct public notification, and 50 facilities reduce risk by replacing an engine	$15,608 ($1,500 to $43,500)

* The average cost was calculated by adding all of the costs for each facility category, and dividing that amount by the number of facilities in that category.

Table III-6: Summary of Total Costs for Four Facility Categories

Facility Category	Number of Facilities	Total Cost	Average Cost
Facility with 1 engine	10,650	$250,275	$24
Facility with 2 engines	1,533	$1,402,855	$915
Facility with 3-4 diesel engines	825	$1,970,825	$2,389
Facility with 5 or more diesel engines	444	$3,576,000	$8,054
Grand Total	13,452	$7,199,955	$535

Facilities that Emit Substances with New Health Values

Facilities that emit crystalline silica, acrolein, or other substances that have new health values, may be subject to new reporting requirements, including possible source testing

and health risk assessment requirements. In addition, some facilities will need to update their health risk assessment because their risk assessment may not adequately reflect the current risk at the facility. This is particularly important for facilities with diesel engines, but may also impact other facilities that emit substances with new health values, like naphthalene, or emissions of newly listed substances, like vanadium pentoxide.

As has been the case in previous years during the implementation of the "Hot Spots" Program, new information becomes available which increases our awareness of the toxicity of substances. This information can trigger new reporting requirements and risk assessments for businesses that use or emit these substances. In some cases, test methods are not available, and the facility may be responsible for estimating emissions using experimental methods, or other emission inventory estimation methods. These efforts will be coordinated by both ARB and districts, and, to the greatest extent possible, allow businesses to use default screening (health protective) emission factors whenever possible. For most cases, ARB staff recommends that local air districts consider postponing emission reporting requirements for these substances until an adequate test method is identified. At that time, districts will have the option of evaluating existing emission factors and source test options, in order to help the facility estimate emissions.

Because a generally accepted source test method is still under development, businesses that handle materials that contain crystalline silica, like sand and gravel operations, or businesses that emit acrolein as part of their combustion processes may be asked to participate in the development of source test methods or emission factors until test methods have been identified. Average compliance costs for a facility that emits any newly listed substance or substance with a new health value may not reflect the actual costs for facilities that emit large amounts of the substance in close proximity to sensitive receptors such as residences. In addition, these facilities are much more likely to be required to update their emission inventory. For these facilities, compliance costs may exceed $20,000. For most facilities that emit a newly listed substance (or one with a new health value), an emission inventory update by the facility, and a reprioritization by the district, are likely to have low financial costs.

In order to estimate how many facilities may be impacted by the new health value for naphthalene and crystalline silica, the revised health value for acrolein, and the inadequacy of the source test methods for crystalline silica and acrolein, staff relied on previously reported emissions data. We assumed that facilities that emitted more than 300 lbs/yr of naphthalene, 1,000 lbs/yr of crystalline silica, or 25 lbs/yr of acrolein may be potentially subject to additional "Hot Spots" requirements and associated costs.

The number of affected facilities and the estimated costs for facilities that emit these substances are listed in Table III-7. Because these three substances have a significant potential to trigger additional "Hot Spots" requirements, these cost estimates represent the highest average cost for a facility that emits a newly listed substance, or a substance with a new health value.

Table III-7: Estimated Average Facility Costs for Three Substances

	Naphthalene	Crystalline Silica	Acrolein
Estimated additional costs for an average facility that emits the listed substance:	$2,500	$6,000	$4,000
Estimated number of facilities that emit the listed substance in quantities that may require an updated emission inventory or health risk assessment, and possibly additional fees and other requirements:	35	75	100
Total estimated costs for facilities that emit the listed substance:	$87,500	$450,000	$400,000
Total estimated costs for all three substances:	$937,500		

The cost estimates in Table III-7 for naphthalene are lower because a source test is already available, and the emissions have already been estimated and reported by facilities that emit naphthalene. The cost estimate only reflects the cost for some facilities to update their risk assessment to reflect the potency of naphthalene. The cost estimates in Table III-7 for crystalline silica and acrolein are based on staff's estimates of the cost for inventory reporting, and the shared cost to the industry for source testing and emission factor development. It is anticipated that estimating emissions of crystalline silica will be slightly more costly than for acrolein due to the nature of the processes that emit crystalline silica. A smaller number of facilities may have to conduct a health risk assessment for crystalline silica and acrolein, compared with naphthalene, and those costs are also reflected in Table III-7.

Other newly listed substances besides naphthalene, crystalline silica, and acrolein, will likely have much lower compliance costs for facilities. Unlike crystalline silica and acrolein, emission factors for these other newly listed substances are readily available for estimating emissions, which decreases compliance costs. Although these other substances may trigger inventory update requirements for a small number of facilities, in general, most facilities will be able to include these new substances with a relatively small increase in compliance costs.

F. Potential Costs for Public Agencies with Diesel Engines

Local government agencies, including cities and counties, publicly-owned utility districts, as well as the State and federal government, own and operate stationary diesel engines subject to the proposed amendments. Compliance costs for these public agencies will be similar to businesses. The diesel engine facility data submitted to the districts

indicated that publicly-owned facilities comprised a large proportion of the facilities with multiple engines. Multiple engine facilities are more likely to experience costs as a result of the proposed revisions. Based on that finding, we estimated that of the $8.1 million in compliance costs (over 4 years) for facilities subject to the proposed amendments, approximately 40%, or $3.3 million, will be borne by publicly-owned facilities.

Based on the facility data information obtained from the districts, we were not able to separate the public facilities into the different government sectors i.e. local, state, and federal. To obtain an estimate of the costs for the various government sectors, we relied on the distribution of publicly owned engines that was used for the development of the costs associated with the ATCM.[1] We assumed that the costs for an individual government sector is proportional to the contribution of the engines in that sector to the total population of publicly owned engines. Below, we discuss the various types of government agencies with engines and the estimated costs for compliance with the proposed amendments.

Several State agencies provide services requiring stationary diesel equipment for public safety. Examples of these operations include prisons, government data storage facilities, emergency flood control, and college campuses. State agencies that may be impacted by the proposed amendments to the Guidelines Regulation include the Department of Corrections, General Services, the University of California and the California State University systems, the Department of Water Resources, the Franchise Tax Board, and the Department of Fish and Game. State owned and operated engines represent an estimated 9% of the total publicly owned engines. Based on this proportion, we estimate the costs for State agencies for compliance with the proposed amendments to be about $300,000.

Cities, counties, and other local government entities provide services requiring the use of diesel engines to ensure public safety or maintain essential services during emergencies. Examples include police departments, jails, fire departments, government data storage facilities, and sewage and water treatment facilities. In the event of power outages, floods, or other emergencies, this equipment prevents disruptions in critical operations. Local government owned and operated engines comprise an estimated 55% of the total publicly owned engines. Assuming that the costs are proportional to their contribution to the total population of public engines, we estimate the costs for these entities to be approximately $1.8 million.

Federal agencies operate stationary diesel engines in California and provide services for ensuring public safety and other essential government functions. Examples of operations include prisons, government data storage facilities, and military bases. We estimate the costs for federal agencies to be approximately $1.2 million.

[1] Based on the survey information collected during the development of the stationary engine ATCM, of the engines operated by public agencies approximately 9% are owned by State agencies, 55% by federal agencies and 36% by local government agencies.

Most of the risk reduction compliance costs for the proposed amendments are not incurred for several years, which will allow government agencies sufficient time to request funding for any projected increase in costs associated with the operation of diesel engines subject to the proposed amendments. For many federal entities, including many military bases, stationary diesel engines are not likely to be located near receptors, and are less likely than private businesses to incur increased compliance costs associated with the proposed amendments.

Implementation Costs for ARB, OEHHA, and Districts

Districts review inventory plans and reports, review source test plans and reports, review health risk assessment calculations and assumptions, track facility status, emissions, and risk in a database, and make information available to ARB and the public. Districts also review public notification letters and attend public consultation meetings, review facility risk reduction audit and plans, and enforce facility risk reduction plans. ARB assists districts in implementing the "Hot Spots" Program, compiles emission inventories, develops and refines health risk assessment tools, and makes emissions and risk information available to the public. OEHHA adopts health values, develops and updates risk assessment guidelines, and assists districts in reviewing health risk assessments.

In is anticipated that ARB, OEHHA, and districts will cover any additional increase in implementation costs associated with the proposed amendments through the "Hot Spots" fees and existing program budgets and resources. The "Hot Spots" Program requires ongoing facility evaluations, and these activities are funded through current budget structures, which are reimbursed through facility fees.

G. State and District Fees

State fee rates for facilities subject to "Hot Spots" are listed in the AB 2588 Air Toxic "Hot Spots" Fee Regulation (Section 90700-90705, Title 17, California Code of Regulations) which lists the fee rates for each risk category. District staff compiles the prioritization scores and health risk assessment values for each facility and annually submits updated information to ARB staff. ARB staff uses the fee rate schedule to assign State fees to each facility subject to the "Hot Spots" Program. Each year a list of facility State fees is made available on ARB's web page at: http://www.arb.ca.gov/ab2588/2588fees.htm.

A facility is not subject to State fees if the facility:

(a) has a prioritization score of 10 or less; or
(b) has a health risk assessment for cancer of less than 1, and a health index of less than 0.1 for acute and chronic effects; or
(c) eliminates the release of toxics, which is enforceable by permit; or
(d) does not meet the criteria for inclusion in "Hot Spots".

For facilities that are subject to “Hot Spots” State fees, ARB intends to treat facilities with only diesel engines in a similar manner to the “industrywide” classification, which is used for gas stations and autobody shops. This enables ARB to apply the $35/yr “industrywide” fee for facilities with only diesel engines that are subject to State fees, rather than the regular fee rates, which range from $67 to $6,363. This is being done, in part, because of the efforts already underway to reduce emissions from diesel engines. However, facilities with sources of air toxics other than diesel engines may be assessed a higher State fee when the risk from diesel PM is added to their existing health risk assessment. These facilities would not qualify for the “industrywide” State fee rate.

Facilities already in the “Hot Spots” Program will pay the same State fee as in previous years until the facility has determined if the risk at the facility changes when diesel risk is included in the facility evaluation. For many facilities that are updating their emission inventory and health risk assessment, the State fee will not change. For the purposes of this cost analysis, if the State fee does not change for a facility, the State fee is not included in the analysis. Facilities with other toxics already subject to “Hot Spots” reporting and that are required to update their health risk assessment will remain in the same fee category until the health risk assessment has been approved by the district.

In order to provide for consistency and equity between districts, ARB will assess State fees for facilities with diesel engines not previously subject to “Hot Spots” no earlier than Fiscal Year (FY) 2008-2009. This provides more time for districts to evaluate the risk from facilities with diesel engines and provides facilities with an opportunity to expedite emission reductions to address “Hot Spots” requirements. This will also limit the uncertainty in State fees assessed for facilities already subject to State fees during the process of reevaluating their risk.

Because much of the “Hot Spots” requirements are being addressed through the stationary diesel engine ATCM, the State’s costs for implementing the program will be minimized and the reduction in workload will be reflected in lower fees for facilities with only diesel engines. The current State fees are approximately $750,000 for FY 05-06. It is expected that State fees will increase in FY 2008-2009 by up to $380,255 due to the collection of fees from facilities subject to these amendments. The total State fees will then resume a steady decline as has been the case for the last several years. There is a legislative cap on State fees of $1,350,000 (H&SC Section 44380) and ARB staff does not expect the additional fees to exceed this cap. ARB staff will include in the “Hot Spots” Annual Status Report on State fees for applicable fiscal years a breakdown of fees so the public can understand what affect these amendments are having on diesel engine owners. All of ARB’s previous annual status reports are located at: http://www.arb.ca.gov/ab2588/2588fees.htm.

A summary of the projected annual increases in State fees and costs due to the proposed amendments is summarized in Table III-8, and shows how State fees and costs are projected to drop as risk is reduced, and program requirements are met. The amounts in Table III-8 projections, and are based on assumptions about facility health

risks and “Hot Spots” Program requirements. State fees could be higher or lower than these amounts. Until facility evaluations are completed and the applicable State fees are assessed, these amounts are only an estimate. Additional information about each fee category and fee rates is provided in Appendix D of this staff report.

Table III-8: Summary of Projected State Fees and Cost Increases Due to the Proposed Amendments

	Estimated Number of Facilities with Diesel Engines	State Fees ($)			
		FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012
Previously exempted facilities	5,000	107,325	87,325	77,000	67,000
Facilities currently in “Hot Spots”	800	182,000	162,000	140,000	130,000
New facilities not previously in “Hot Spots”	7,652	90,930	70,930	60,000	50,000
TOTAL	**13,452**	**$380,255**	**$320,255**	**$277,000**	**$247,000**

Local district fee rules are approved by the local air district. The district determines how much to charge facilities, based on the workload associated with reviewing the facility’s emissions and risk information. In some cases, districts will decide to treat diesel engine-only facilities like “industrywide” facilities, which reflects the fact that many of the “Hot Spots” Program requirements have been met by the facility complying with the stationary diesel engine ATCM. District fees are generally much lower for “industrywide” facilities, compared with larger, more complex facilities. Similar facilities in different districts may be charged different district fees, depending on each district’s program needs and resources.

H. Economic Impacts

In this section, we analyze the potential impacts of the estimated costs of the proposed amendments on business enterprises in California. Section 11346.3 of the Government Code requires that, in proposing to adopt or amend any administration regulation, State agencies shall assess the potential for adverse economic impact on California business enterprises and individuals. The assessment shall include a consideration of the impact of the proposed or amended regulation on the ability of California businesses to compete with businesses in other states, the impact on California jobs, and the impact on California business expansion, elimination, or creation.

This analysis is based on a comparison of the annual “return on owner’s equity” (ROE) for affected businesses before and after the inclusion of the equipment costs, associated recurring costs, and fees. The analysis also uses publicly available

information to assess the impacts on competitiveness, jobs, and business expansion, elimination, or creation.

The types of businesses that may be impacted by the proposed amendments include facilities with diesel engines and facilities that emit a newly listed substance, or emit a substance with a new health value. Only the added costs triggered by the proposed amendments are included in this analysis. Any ongoing costs not attributed to the proposed amendments for facilities already subject to "Hot Spots" are not included. For State and district fees, only the increase in fees (attributed to the proposed amendments) above a facility's current fee level are included. A list of potentially affected businesses is provided in Appendix D, Table D-6, of this staff report.

The approach used in evaluating the potential economic impact of the compliance costs and State fees associated with these amendments on these businesses is outlined as follows:

(1) A typical business from selected affected industries was chosen based on the availability of financial data for the individual business.

(2) The highest reasonable compliance cost and State fees were estimated for each of those businesses. This includes the compliance costs for the preparation of an emission inventory or inventory update, new health risk assessment or update to an existing risk assessment, the State fee that is assessed on the facility (based on the outcome of the health risk assessment), public notification, preparation of a risk reduction audit and plan, and completing risk reduction. The compliance costs are extremely varied, with some businesses accruing no additional costs, while some businesses with a large number of diesel engines located close to nearby receptors may have to conduct public notification and risk reduction, and pay a high annual State and district fee until their risk is reduced.

(3) The "return on owner's equity" (ROE) was calculated for each of these businesses by dividing the net profit by the net worth. The adjusted compliance costs and applicable increased State fee were then subtracted from net profit data. The results were used to calculate an adjusted ROE. The adjusted ROE was then compared with the ROE before the subtraction of the adjusted compliance costs and State fee to determine the impact on the profitability of the businesses. A reduction of more than 10 percent in profitability is considered to indicate a potential for significant adverse economic impacts.

The threshold value of 10 percent has been used consistently by ARB staff to determine impact severity. This threshold is consistent with the thresholds used by the United States Environmental Protection Agency and others.

Since financial data were not available for all individual businesses subject to the proposed amendments to the Guidelines Regulation, this study used three-year

average (2002-2004) data from Duns Financial Profile for a nationwide typical business in each industry. Using the nationwide financial data, the ROE values before and after the subtraction of the adjusted compliance costs and fees were calculated for industries listed in Table D-6. The calculations were based on the following assumptions:

(1) All affected businesses are subject to federal and State tax rates of 35 percent and nine percent respectively.

(2) Affected businesses neither increase the prices of their products nor lower their costs of doing business through short run cost-cutting measures.

Given the limitation of available data, staff believes these assumptions are reasonable for most businesses; however, they will not be applicable to all businesses.

Potential Impact on Businesses

Typical California businesses are affected by the amendments to the extent that the implementation of the amendments would change their profitability. Using ROE to measure profitability, we found that the average ROE of sample businesses in the industries listed in Table D-6 changed by less than one percent. This represents a minor change in the average profitability of typical businesses in California. For a small number of businesses, the ROE changed by seven to eight percent. The impact on these businesses is likely to be small.

The change in profitability of individual industries with affected businesses, however, varied widely from the industry averages. For the industries listed in Table D-6, for example, the change in profitability ranged from a high of eight percent to a low of 0.001 percent. This variation in the impact of the amendments can be attributed mainly to two factors. First, some businesses are subject to higher compliance costs and State fees due to the type of industry in which they are involved, the type, quantity of emissions, potency of the substances that are emitted, the numbers of devices and emitting processes, and the location of the business. In most cases, the number of diesel engines and the location of the engines relative to nearby receptors (residences, schools, and other businesses) is the determining factor. For instance, the estimated compliance costs and State fees for sample businesses ranged from a high of $150,000 to a low of $0. Second, the performance of businesses may differ from year to year. Hence, the three-year average (2002-2004) nationwide financial data used may not be representative of a typical-year performance for some businesses.

The potential impacts estimated here may be high for the following reasons. First, the “Hot Spots” Program compliance costs and State fees are not new to most affected industries and businesses. Second, affected businesses probably would not absorb all of the increase in their costs of doing business. These facilities might be able to pass some of the cost on to consumers in the form of higher prices, reduce their costs, or do both.

Potential Impact on Consumers

No noticeable change in consumer prices is expected from the amendments because the compliance costs and State fees would have only a minor impact on the profitability of affected business.

Potential Impact on Employment

Since the compliance costs associated with the amendments impose no noticeable impact on the profitability of businesses, the staff expects no significant change in employment due to the imposition of the compliance costs and State fees. However, the amendments may impose hardship on some businesses operating with little or no margin of profitability, affecting the creation or elimination of jobs in California.

Impact on Business Creation, Elimination, or Expansion

No change is expected to occur in the status of California businesses as a result of the amendments. This is because the amendments have no significant impact on the profitability of businesses in California. However, should the amendments impose significant hardship on California businesses operating with little or no margin of profitability, some small businesses may be forced out of the market or decide not to expand in California. Also, some businesses may decide against coming to California.

Impact on Small Businesses

Industries that are composed mostly of small businesses are not likely to own more than one diesel engine, and are therefore not likely to be subject to the proposed amendments to the Guidelines Regulation. In the case of a small business owning more than one engine, it would be unlikely for the facility to have a significant risk, and therefore the impact of the proposed amendments to the Guidelines Regulation would likely be small. However, if the small business did own several engines, the risk from those engines was significant, and the district's risk reduction threshold was relatively low, the impact on a small business could be significant. ARB staff assumed that a facility with multiple diesel engines was not likely to be a small business, and not likely to pose a significant risk. ARB staff is not aware of any business that exists in California that could fall into this category where the impacts are significant.

Impact on Business Competitiveness

The amendments would have little or no impact on the ability of California businesses to compete with businesses in other states. This is because the amendments do not impose a noticeable impact on the profitability of California businesses. However, the amendments may have an adverse impact on the ability of some California businesses, operating with little or no margin of profitability, to compete with businesses in other states.

I. Environmental Impacts

The staff is not aware of any significant adverse impacts on the environment resulting from the proposed amendments to the Guidelines Regulation. The proposed changes to the regulation are designed to better protect the public, including individuals that are the most sensitive, which include children, the elderly, and those with compromised immune systems.

IV. IMPLEMENTATION AND ADDITIONAL CONSIDERATIONS

The objectives of the "Hot Spots" Program are straightforward, they are: inventory emissions, evaluate the health risks, notify nearby receptors if there is a significant risk, and work to reduce the risk. However, the execution of the requirements can be somewhat complex, particularly to a facility that has not been subject to the program in the past. In this chapter, we provide a general discussion on how implementation of the proposed amendments will occur. We also discuss several aspects of the proposed amendments to the Guidelines Regulation that were raised at the public workshops and provide ARB staff's perspective.

A. Implementation Schedule

Because implementation of the stationary diesel engine ATCM is well-underway, facilities have already submitted engine inventory information to the districts. The ATCM required engine owners and operators to provide information about their engines (make, model, horsepower, location, nearby receptors etc.) by July 1, 2005. Under the Guidelines Regulation, the district may use the July 2005 diesel engine information to fulfill the emission inventory reporting requirements for the "Hot Spots" Program.

At the discretion of the district, facilities have the option to submit the 2006 or 2007 emissions inventory for use in calculating the facility prioritization score. The 2006 emissions data would allow districts to evaluate emissions after the stationary emergency standby (backup) diesel engines had reduced their operating hours to comply with the ATCM. The ATCM requires any operator choosing to reduce operating hours as a compliance option to be in compliance with the reduced hours by January 1, 2006. This could be a good option for facilities that did not track backup engine usage in the past, but are now subject to annual operating hour limits.

Using the 2007 emissions data may also allow some facilities that operate prime diesel engines, and that are in the process of retrofitting those engines, to estimate emissions after some of those controls are already in place. This may also serve as an incentive for a facility to retrofit or replace their engines more quickly to comply with "Hot Spots" and avoid the need for public notification.

Table IV-1 provides an example of the timeline for facilities subject to the "Hot Spots" Program. These timelines are consistent with the time allotted for completion of specified activities in H&SC Sections 44340, 44341, and 44343. This schedule is based on requirements in the statute, and may take up to four years to complete. The district determines the schedule for risk reduction.

Table IV-1: Timeline for a Facility Subject to "Hot Spots"

Facility Action
District notifies facility of "Hot Spots" requirements
Facility submits plan to district within 180 days
District approves plan within 120 days
Facility submits inventory report within 180 days
District approves report within 90 days
District prioritizes facility within 90 days
Facility submits HRA (if necessary) within 150 days
District sends HRA to OEHHA
OEHHA submits HRA comments within 180 days
District approves HRA within 1 year
Facility notifies public if risk from facility is high
Facility reduces significant risk to below risk threshold
Total Elapsed Time is 3 years and nine months.

Because compliance with the stationary diesel engine ATCM will fulfill all or most of the "Hot Spots" program requirements for the facilities, a modified implementation schedule will be available for facilities that meet the definition of a "diesel engine-only" facility. An example of an implementation schedule for these facilities is shown Table IV-2.

Table IV-2: "Hot Spots" Implementation Schedule for Diesel Engine-Only Facilities

Proposed Action for Diesel Engine-Only Facility	Date
District notifies facility of "Hot Spots" requirements	before January
Facility submits updated inventory to district upon request	by August
District calculates screening risk assessment score	December
Facility conducts health risk assessment if necessary	June
District approves health risk assessment	September
Facility conducts public notification if necessary	October
Facility reduces significant risk to below district risk reduction threshold	Within 3-10 yrs*

*The district determines timeframe for risk reduction.

B. Additional Considerations

Agricultural Engines

In the following paragraphs, we provide background information on how stationary diesel engines at agricultural operations will be addressed in the "Hot Spots" Program in light of other activities at the State and local level to reduce emissions from in-use stationary agricultural diesel engines. To minimize duplicative requirements, we intend to allow these programs to move ahead with cleaning up agricultural diesel engines and then use the "Hot Spots" Program to identify facilities that may pose a significant residual risk. We anticipate that most, if not all, of the risk reduction necessary will be addressed by the ATCM and equivalent district programs.

Currently, the stationary diesel engine ATCM affects only new agricultural engines, and establishes emissions performance standards for new agricultural engines similar to the requirements for new emergency standby engines. The existing ATCM does not include performance standards or operating hour restrictions for in-use agricultural engines. However, as mentioned, ARB staff is currently developing amendments to the ATCM to include requirements for in-use agricultural engines. One of the goals for the amendments to the ATCM is to include requirements for in-use agricultural engines that will help satisfy "Hot Spots" requirements in order to reduce compliance costs and minimize duplicative requirements. As currently proposed, the ATCM will:

- Establish performance standards that will require replacement or retrofit of existing engines to meet at least Tier 3 off-road engine certification standards
- Require registration for all agricultural engines and specify reporting of owner and operator information, location of engine, engine specifications (make, mode, bhp, age), operational information on hours of operation and fuel usage, as well as additional information about nearby receptors
- Allow owners/operators of existing Tier 0 engines, upon local air district approval, to wait until 2015 to install Tier 4 engines or electrify in cases where a Tier 3 engine would result in significant residual risk
- Allow alternative programs (for example, a district permitting program) or other district alternative, provided they are equivalent to the proposed registration program

The Board will consider amendments to the stationary diesel engine ATCM to include in-use stationary diesel agricultural engines at the same public hearing as the proposed amendments to the Guidelines Regulation will be considered. The proposed amendments to the ATCM are structured so that an inventory of agricultural engines in the State will be available, and the emissions from agricultural engines will be greatly reduced after compliance with the ATCM. Because the proposed amendments to the ATCM achieve such a significant reduction in risk for most engines, compliance with the ATCM will satisfy "Hot Spots" requirements in most, if not all, cases.

In order to minimize duplicative requirements and allow risk reduction to occur pursuant to the ATCM or an equivalent district program, ARB staff is proposing to postpone "Hot

Spots" applicability requirements for in-use agricultural diesel engines until after December 31, 2011. The adoption of the ATCM or equivalent district program indicates a decision to begin taking action to reduce risks immediately. This schedule allows engine operators five years to focus on cleaning up stationary diesel engines at agricultural operations through the ATCM process before triggering "Hot Spots" requirements. In addition, ARB, local air districts, and the agricultural industry have agreed to work together in the near-term to identify agricultural engines near schools residences, or other sensitive sites to ensure that the risk at facilities with these engines will be reduced below district thresholds as quickly and efficiently as possible. Although not all engines will be replaced by the end of 2011, the vast majority engines that could pose a significant risk will have been replaced, and facilities with new engines being installed will be below the district's risk reduction threshold. In 2012, facilities with stationary agricultural engines that still pose a residual risk above the district risk thresholds will be subject to "Hot Spots" program requirements. However, we anticipate that this will only affect a relatively small number of facilities with diesel engines located near populated areas.

The San Joaquin Valley Unified Air Pollution Control District has adopted its own rule covering stationary diesel engines at agricultural operations. The schedule for engine replacements contained in this rule will reduce the risk for most agricultural engines consistent with "Hot Spots" requirements. The rule has a compliance schedule which calls for the replacement of all non-certified compression ignition agricultural engines with EPA Tier 3 or Tier 4 certified engines by July 1, 2011. To allow both the implementation of the ATCM and the San Joaquin Valley rule, we propose that "Hot Spots" requirements for diesel engines at agricultural operations not be triggered until after 2011.

Unique Diesel Engine Applications

Engines exempt from permits, rules, regulations, registration programs, or the stationary diesel engine ATCM are not automatically exempt from "Hot Spots" if the facility operates any number of diesel engines subject to "Hot Spots" for more than 20 hrs/yr total at the facility, and the district has not evaluated the potential risk at the facility. For example, engines located on San Nicolas and San Clemente Island are likely low risk, but are not exempt from "Hot Spots"; engines that use digester or landfill gas, engines that have selective catalytic reduction, engines that operate on the outer continental shelf, and engines owned by the military and other agencies such as the National Aeronautical Space Administration must be included in the facility's emission inventory. Engines at hospitals and nuclear facilities may be exempt from hour limits as part of the ATCM, but their emissions may still be required to be included in their "Hot Spots" emission inventory reporting.

However, there are unique diesel engine applications where there is a compelling public safety or regulatory reason that justifies a district allowing an alternate risk reduction threshold for specified diesel engine applications. Based on a review of diesel engine applications, ARB recommends that districts adopt alternate risk reduction requirements for military tactical support equipment, direct-drive fire pumps that must meet National

Fire Protection Association (NFPA) specifications, and stationary emergency standby engines at nuclear power plants that are subject to the requirements of the United States Nuclear Regulatory Commission. The district may require risk reduction, where feasible and practical, for the other sources of toxics at the facility. In addition, these engines would still be subject to "Hot Spots" reporting and public notification requirements based on the entire risk at the facility. The three applications and the reasons why these engines should be given this consideration are provided below.

Military Tactical Support Equipment: Military tactical support equipment (TSE) is owned by the U.S. Department of Defense (U.S. DoD) and/or the U.S. Military services. TSE is used in combat, combat support, combat service support, tactical or relief operation, or training for such operations. TSE that must be configured and designed similarly to counterpart engines used by the U.S. DoD, U.S. Military services, or North Atlantic Treaty Organization forces are exempt from the stationary engine ATCM. This is because the U.S. DoD requires world-wide military standardization with respect to engine configuration and fuels. While the emissions from TSE can be included in an emission inventory if the use is routine and predictable and the district determines that the facility may pose a potential significant risk, ARB staff believes it is appropriate for the district to consider an alternative risk reduction requirement under "Hot Spots" to avoid conflict with U.S. DoD specifications and to not compromise U.S. defense operations.

Direct-drive Fire Pumps: Direct-drive fire pump engines are exempt from the ATCM if they are used solely to pressurize a fire suppression system and operated the number of hours necessary to comply with the inspection, maintenance, and testing requirements of the NFPA "Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems" (NFPA 25).

Fire pumps are used to supply water to fire sprinkler systems. These fire pumps are needed at sites where water pressure is insufficient for fire protection. Direct-drive fire pumps are fire pumps directly powered by a diesel-fueled engine. Generally, direct drive diesel engine fire pumps are used to power fire pumps in areas with unreliable electrical power and in remote areas. (ARB, September 2003) These engines are designed slightly different than other diesel-power sources to ensure reliability and running until engine failure. In addition, they are required by NFPA to be certified for fire pump service by a testing laboratory such as the Underwriters Laboratory (UL) or FM Global (FM) and are subject to requirements in State law that specify requirements for installation and maintenance and testing of the engine. Given the public safety concerns, ARB staff included an exemption in the ATCM for direct-drive fire pumps that must exceed the 30-hour annual cap required for emergency standby engines due to the NFPA 25 requirements. They were also exempt from the emissions performance standard since installing an emission control system by modifying the exhaust system may void the UL or FM lab certification. For the same reasons, ARB staff believes it is appropriate for districts to provide special consideration for these sources when determining risk reduction requirements under "Hot Spots" by establishing alternate risk reduction requirements.

Stationary Emergency Standby Engines at Nuclear Power Plants: Currently, there are two active nuclear power plants in California: the Diablo Canyon Nuclear Power Plant, Avila Beach, operated by the Pacific Gas and Electric Company, and the San Onofre Nuclear Generating Station, San Clemente, operated by the Southern California Edison Company. Both facilities have emergency standby stationary diesel engines that provide power for the emergency core cooling and other vital functions for the safe shutdown of the nuclear power plant. The ATCM exempts these engines from the operational requirements and emission standards if: it is an emergency standby engine used solely for the safe shutdown and maintenance of a nuclear facility; the engine is subject to the requirements of the Nuclear Regulatory Commission; and the engine operates 200 hours or less per year for maintenance and testing purposes. These engines were given an exemption from the ATCM because they provide for the safe-shutdown of a nuclear facility and as such are subject to unique requirements (hardened buildings, Nuclear Regulatory Commission required failure mode analysis) that make retrofitting or replacing the engines extremely costly. (ARB, September 2003) For these reasons, ARB staff also believes it is appropriate to provide them special consideration by districts during the determination of risk reduction requirements.

Health Risk Assessments

Under the proposed amendments, the 2003 OEHHA Health Risk Assessment Guidelines are replacing the 1992 CAPCOA Health Risk Assessment Guidelines. Because of this, some facilities may be required by the district to update their health risk assessment prepared following the CAPCOA risk assessment guidelines with a health risk assessment that follows the 2003 OEHHA Guidelines.

The OEHHA methodology utilizes a dose-based metric (mg/kg-d), rather than a concentration-based metric (ug/m^3); allows the use of the OEHHA-derived method; and allows for a tiered approach to risk assessment, referred to as a likelihood of risks, which includes a stochastic, or probabilistic, approach to health risk assessment. These changes have the potential of increasing the calculated risk for a facility by as much as 30% compared to the earlier CAPCOA risk assessment guidelines, due in part to changes in breathing rate as part of the dose-based assessment. ARB has provided Interim Risk Management Guidelines that recommend using, at a minimum, the 80% percentile breathing rate, as stated here: http://www.arb.ca.gov/toxics/harp/docs/rmpolicy.PDF. (ARB, October 2003) This means the results of past health risk assessments are roughly equivalent to a health risk assessment done today using the OEHHA Health Risk Assessment Guidelines, and the 80^{th} percentile breathing rate. Districts will likely use their discretion as to which facilities may need to revise their previous health risk assessment. There is no explicit requirement for a facility with an old health risk assessment to update their health risk assessment using newer methodologies, unless the district determines that the past evaluation is not an accurate assessment of the facility as it currently operates.

For facilities with diesel engines that need to conduct a health risk assessment, the 2003 OEHHA Health Risk Assessment Guidelines provide guidance on calculating

health risk assessment for diesel PM in Appendix D. The following guidance for diesel PM is summarized from the OEHHA Health Risk Assessment Guidelines.

In August 1998, ARB identified diesel exhaust as a toxic air contaminant. OEHHA provided an inhalation non-cancer chronic reference exposure level (REL) and an inhalation cancer potency factor based on whole diesel exhaust (gas and particulate matter). The surrogate for whole diesel exhaust is diesel particulate matter (diesel PM). PM10 (particulate matter, ten microns or less in size) is often used as the basis for the potential risk calculations.

When conducting a health risk assessment, the potential cancer risk from inhalation exposure to diesel PM is always required to be calculated. The non-cancer chronic inhalation health impacts of diesel PM are also to be calculated, using the available chronic REL for whole diesel PM. As stated in the OEHHA Guidance Manual, the potential inhalation cancer risk will usually outweigh the potential non-cancer health impacts. There may be certain situations where an evaluation of the acute non-cancer health effects may be warranted (such as a nearby receptor on a hillside or other location above the emission release point). Because there is no acute REL for whole diesel exhaust, the components of the exhaust would need to be speciated to conduct an acute analysis, addressing any substances in the speciation profile for which an acute REL is available (e.g., acrolein).

Other than for possible acute analysis, speciation of the diesel exhaust components is not generally required. When comparing whole diesel exhaust to the chemically speciated diesel exhaust components (e.g., metals, PAHs), the potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated components. For this reason, there will be few situations where an analysis of multipathway risk is necessary. However, districts may elect to require a multipathway analysis if reliable data are available and the district decides that it is necessary.

Alternative Diesel Fuels and Health Risk Assessments

During the public workshops to discuss the proposed amendments to the Guidelines Regulation, questions were raised regarding what fuels can be used in a stationary diesel engine, and how the risk from diesel engines operating on alternative fuels or alternative diesel fuels should be evaluated.

With respect to the types of fuels allowed to be used in stationary diesel engine, the current version of the ATCM requires that all new and in-use stationary compression-ignition engines in California use only specified fuels. The allowable fuels include the following:

- CARB Diesel Fuel;

- An “alternative diesel fuel” that meets the requirements of ARB’s Verification Procedure, as codified in Title 13, California Code of Regulations, Sections 2700-2710;

- An “alternative fuel” (e.g., compressed natural gas (CNG), liquefied petroleum gas (LPG), biodiesel);

- CARB Diesel Fuel used with fuel additives that meet the requirements of the Verification Procedure; or

- Any combination of the above.

No other fuels should be in use in stationary diesel engines in California.

There are some differences in how the individual substances emitted from these various types of fuels should be reported under the “Hot Spots” emission inventory reporting requirements. The proposed reporting for substances is discussed below.

- If the fuel is CARB diesel fuel or contains more than 1% of CARB diesel fuel (including cases where the engine is dual-fired), the emissions from the engine must be reported as diesel PM emissions. The pollutant identification number 9901 for *Diesel engine exhaust, particulate matter* on the “Hot Spots” Appendix A-I list of substances would be used for diesel emissions.

- If the fuel is an “alternative diesel fuel” as defined in the ATCM (such as Fischer-Tropsch fuels or emulsions of water in diesel fuel), and it contains diesel fuel in the blend, the emissions from the engine must be reported as diesel PM emissions (using emittent ID 9901).

- For pure biodiesel blends (99%+), the emissions would be reported as the speciated components from the particle-phase and the gas/vapor phase, rather than as diesel PM.

- If the fuel is an “alternative fuel” as defined in the ATCM (such as compressed natural gas (CNG) or liquefied petroleum gas (LPG), and does not contain any diesel fuel, the emissions from the engine would be reported as the speciated components from the particle-phase and the gas/vapor phase, rather than as diesel PM.

For purposes of health risk evaluation under the “Hot Spots” requirements, any engine for which diesel PM has been reported (i.e., it uses the emittent ID 9901), the OEHHA inhalation cancer risk factor for diesel exhaust PM would be applied, and the previous methods would be used. For engines for which only the speciated components are required to be reported (e.g., a CNG engine), the risk evaluation would be based on the speciated components, including any cancer and non-cancer health effects values associated with the speciated substances.

Routine and Predictable Operations for Diesel Engines

The "Hot Spots" Program requires emission reporting based on routine and predictable emissions from a facility. This includes activities that occur at the facility on a regular basis. It is not limited to regular activities that occur on a daily or monthly basis but can also include activities that might occur once every few years if the activity is planned in advance and occurs on a repeating basis. Because there are such a wide variety of circumstances and conditions between different industries and different air pollution control districts, the determination of what constitutes a routine or predictable activity has been left to the discretion of the districts. ARB proposes to continue that practice. Based on comments ARB staff received at the public workshops, there is some uncertainty among affected facilities about what can be interpreted to be a routine and predictable activity.

In this section, ARB staff provides some examples of what diesel engine applications and operations may be routine and predictable and subject to "Hot Spots" reporting. However, in the final analysis, it will be up to each district to determine how to address routine and predictable operations.

The definition of routine and predictable in the proposed amendments to the Guidelines Regulation is as follows: "Routine and Predictable" is determined by the district, and means all of the regular operations at the facility. Emergency or catastrophic releases at a facility are not routine and predictable and are not included in a facility's emission inventory.

Several examples of diesel engine activities that the district could determine to be routine and predictable, and required to be reported under "Hot Spots" are as follows:

- Regular maintenance and testing of a diesel engine

- Routine use of rented or leased portable engines, even if the identity of the engines are not known (the district could require the facility operator to estimate the total number of hours that the engines operated, and a reasonable estimate of the emissions resulting from those operations)

- Any maintenance activity that could reasonably be predicted to occur at least every few years using either a stationary or portable engine

- Most "hot standby" or other operations in preparation for a potential electrical outage (unless a power outage is imminent – see last example below)

Several examples of diesel engine activities that the district probably would <u>not</u> determine to be routine and predictable are as follows:

- Construction activities or capital improvements lasting a few months

- A limited number of hours of start-up testing after installation of a new engine, or after the initial failure of an in-use engine

- Activities directly related to a short-term response to a natural disaster or unforeseen severe weather, or unforeseen accidental spill or release

- One-time activities that are not considered part of regular maintenance at a facility

- The temporary use of a portable engine to respond to an unforeseen equipment breakdown or malfunction

- Short periods of engine use immediately preceding an imminent electrical outage

Most of the issues related to determining what constitutes routine and predictable activities involve portable diesel engines. As described in previous sections of this report, portable engines (and engines equal to or less than 50 hp) are not included in a facility's emission inventory unless the district determines there is good cause to expect the engines at the facility may pose a significant risk. This could include emissions that are routine and predictable, but because of the amount and location of the emissions, the risk is not expected to be significant. This provision enables the district to focus their facility evaluation only on activities that are likely to pose a significant risk. This reduces the regulatory burden on facilities that must report their diesel engine emissions, while still protecting public health.

Public Notification

The district determines how public notification is conducted by facilities with significant risk, as described in H&SC Section 44362 which states that "[A]ny notice shall be made in accordance with procedures specified by the district." Several districts are considering handling initial public notification for facilities with diesel engines that pose a significant risk using the internet. ARB is recommending that districts consider grouping similar facilities together for purposes of initial public notification.

Listed Substances With No Approved Source Test Method

For some listed substances, an approved source test method to estimate emissions does not exist. ARB staff is currently working with districts and industry to determine if new source test methods are available for several substances that are subject to the AB 2588 "Hot Spots" Program. The two substances that have the greatest potential to trigger additional "Hot Spots" requirements are acrolein and crystalline silica. For most cases, ARB recommends that districts postpone requiring reporting emissions of those substances until adequate source test methods and emission factors are available.

In the past, facilities have participated in test method development, and conducted pooled source tests, in order to better estimate emissions of listed substances. For acrolein and respirable crystalline silica, future collaboration between ARB, districts, and facilities may be necessary in order to estimate emissions for these substances.

The following information describes ongoing efforts being made in this regard.

Acrolein

Acrolein is emitted from combustion processes in varying amounts. The source test method that is the basis for the emission factors used in the “Hot Spots” Program is ARB Test Method 430, which has been shown to underestimate acrolein emissions. ARB Test Method 430 is based on a 2,4-dinitrophenylhydrazine (DNPH) impinger method for formaldehyde, but causes degradation of the sample during the collection of acrolein. ARB staff has conducted testing to better understand other methods that could replace ARB Test Method 430, but more work must be done.

Respirable Crystalline Silica

Crystalline silica has been required to be reported under the “Hot Spots” Program since 1989. However, only respirable particle sizes are now subject to reporting requirements. Facilities that have submitted total crystalline silica (or crystalline silica less than PM10) may need to reevaluate their emissions and resubmit crystalline silica emissions that reflect particles with mean mass aerodynamic diameter four microns and smaller. Industry has begun testing using PM2.5 ambient samplers that have been modified to collect PM4, but more work must be done to verify that all of the PM4 is being collected. Facilities that have reported crystalline silica in the past are primarily aggregate (sand and gravel) facilities, and are more likely to be impacted by the proposed amendments.

Acronyms

AB	Assembly Bill (AB 2588)
ARB, or the Board	Air Resources Board
ATCM	Airborne Toxic Control Measure (for stationary diesel engines)
Cal/EPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAS	Chemical Abstracts Service
CCR	California Code of Regulations
CEIDARS	California Emission Inventory Development and Reporting System (CEIDARSII – CEIDARS 2.5)
CTI	California Toxics Inventory
Diesel PM	Diesel Particulate Matter
EIC&GR	AB 2588 Air Toxics “Hot Spots” Emission Inventory Criteria and Guidelines Report/Regulation
g/bhp-hr	Grams per brakehorsepower-hour
Guidelines Regulation	AB 2588 Air Toxics “Hot Spots” Emission Inventory Criteria and Guidelines Report/Regulation
HAP	Hazardous Air Pollutant
HARP	HotSpots Analysis and Reporting Program
H&SC	California Health and Safety Code
ISCST3	Industrial Source Complex Short Term version 3, a U.S. EPA air dispersion model
LOD	Limit of Detection
NFPA	National Fire Protection Association
OEHHA	Office of Environmental Health Hazard Assessment
PCB	Polychlorinated biphenyl
PM	Particulate Matter
PM_{10}	Particulate Matter range 10 microns or less in diameter
REL	Reference Exposure Level
ROE	Return on Equity
SIC	Standard Industrial Classification code
TAC	Toxic Air Contaminant
TSE	Tactical Support Equipment
US or S-UP	Update Summary or Summary Update
U.S. DoD	United States Department of Defense
U. S. EPA	United States Environmental Protection Agency

References for Staff Report

1. (ARB, 1998) California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant: Health Risk Assessment for Diesel Exhaust; Appendix III, Part B.

2. (ARB, October 2000) Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.

3. (ARB, September 2003) Staff Report: Initial Statement of Reasons for Proposed Rulemaking: Airborne Toxic Control Measure For Stationary Compression-Ignition Engines.

4. (OEHHA, March 1999) AB 2588 Air Toxics "Hot Spots" OEHHA Health Risk Assessment Guidelines - *Part I. The Determination of Acute Reference Exposure Levels for Airborne Toxicants*.

5. (OEHHA, December 2002) AB 2588 Air Toxics "Hot Spots" OEHHA Health Risk Assessment Guidelines - *Part II. Technical Support Document for Describing Available Cancer Potency Factors.*

6. (OEHHA, April 2000) AB 2588 Air Toxics "Hot Spots" OEHHA Health Risk Assessment Guidelines - *Part III. Technical Support Document for the Determination of Chronic Reference Exposure Levels*.

7. (OEHHA, September 2000) AB 2588 Air Toxics "Hot Spots" OEHHA Health Risk Assessment Guidelines - *Part IV. Technical Support Document for Exposure Assessment and Stochastic Analysis.*

8. (OEHHA, August 2003) AB 2588 Air Toxics "Hot Spots" OEHHA Health Risk Assessment Guidelines - *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*

9. (ARB, October 2003) Recommended Interim Risk Management Policy For Inhalation-Based Residential Cancer Risk.

10. (ARB, April 2005) Consolidated Table of OEHHA / ARB Approved Risk Assessment Health Values.